23-181

EXHIBITS.

SUPREME COURT OF THE UNITED STATES.

Nos. 102, 103.

GEORGE W. BROWN, APPELLANT,

VS.

RUFUS B. GUILD, EXECUTORS, ETC.,

AND

GEORGE W. BROWN, APPELLANT,

VS.

JAMES SHELBY ET AL.

Oct. 2, 1874

1 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the records of this office, of the specification, and Figures 3, 5, and 7, of the drawing of the English letters-patent granted B. Hornsby in 1839, No. 8281.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this seventeenth day of January, in the year of our Lord one thousand eight hundred and sixty-seven, and of the independence of the United States the ninety-first.

[SEAL.] T. C. THEAKER.

Hornsby's specification.

2 To all to whom these presents shall come:

I, Richard Hornsby, of Spittlegate, in the county of Lincoln, agricultural-machine maker, send greeting.

Whereas Her present Most Excellent Majesty, Queen Victoria, by her letters-patent, under the seal of Great Britain, bearing date at Westminster, the twenty-fifth day of November, in the second year of her reign, did for herself, heirs, and successors, give and grant unto me, the said Richard Hornsby, my ex'c'rs, adm'ors, and assigns, her special license, full power, sole privilege and authority, that I, the said Richard Hornsby, my ex'c'rs, adm'ors, and assigns, and such others as I, the said Richard Hornsby, my ex'rs, adm'ors, and assigns, should at any time agree with, and no others, from time to time, and at all times, during the term of years therein expressed, should, and lawfully might, make, use, exercise, and vend, within that part of the United Kingdom of Great Britain and Ireland, called England, her dominion of Wales, and the town of Berwick-upon-Tweed; and, also, in all Her Majesty's

3 colonies and plantations abroad, my invention of "an improved machine for drilling land, and sowing grain and seeds of different descriptions, either with or without bone or other manure;" in which said letters-patent is contained a proviso that I, the said Richard Hornsby, shall cause a particular description of my said invention, and the manner in which the same is to be performed, to be enrolled in Her said Majesty's high court of chancery, within six calendar months next and immediately after the date of the said in part recited letters-patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now know ye that, in compliance with said proviso, I, the said Richard Hornsby, do hereby declare that the nature of my said invention, and the manner in which the same is to be performed, are fully described and set forth in the drawings hereunto annexed, and in the following description and explanation thereof, that is to say:

Figure 1 of the said drawing is a side view of my improved drill-

4 ing-machine, supported as usual on a frame and two wheels. Figure 2 is a transverse or back view of the same; Figures 3 and 4 a side view and back view of a modification of my said machine, adapted to ridge-drilling; and Figures 5 to 9, inclusive, detached representations of the parts of my said machine on which its superior efficiency depends. All those parts of the machine in respect of which is similar to the drilling-machines in common use, or which exhibit only immaterial variations from contrivances heretofore in use, I shall pass over as unnecessary for me to describe, (as referring to the drawings

hereunto annexed for a sufficient explanation thereof,) and confine myself chiefly to those which I consider to be new. A, Figures 1 and 2, is a hollow wheel, by means of which the seed and manure are immediately deposited in the ground. It is divided in the interior into compartments in manner hereinafter explained, and revolves within the coulter C on an axis, *a*, which passes through one side of the coulter. B is a drawing-pulley fixed outside of the coulter on the same axis as the wheel A, and connected by an endless strap, *b*, with the last wheel
5 (K) of the gear work G H I K, so that as the main cog-wheel H, which is affixed to the axis of the carriage-wheels, revolves along with them, it imparts through the lesser cog-wheels I K, the strap *b*, and pulley B, a simultaneous rotary motion to the wheel A. The seed and manure are supplied to the wheels A through orifice in the side, just below the axis, by a diminishing series of funnels, suspended as usual by chains from the upper part of the machine. The construction of the interior of the wheel A is shown in Figures 5 and 6, the former of which exhibits a sectional view and the latter a plan of the wheel and the other parts of the apparatus immediately in connection with it. The hollow space inside of the wheel is divided into compartments by means of the angular projecting pieces *t t*, which are placed in such positions that they shall catch the seed and manure as they issue from the mouth of the supply-funnel. The periphery of the wheel is equally divided into a series of doors, *o o o*, which turns on hinges *p p*, and have springs *q q* outside to keep them closed under the circumstances
6 to be presently explained. R R is a semicircular ward, which is secured by bolts and stays to the coulter and its frame-work, and so placed that, as the depositing-wheel revolves, its periphery shall approach so near to the face of the ward that the springs *q q* outside of the doors shall press against it, and so prevent the doors from opening during all the time they are passing the said ward. As each spring escapes from the pressure of the semicircular ward at the bottom point *s*, the door to which it belongs flies open, assuming the position indicated by the red lines in Figure 5, and allows the portion of seed and manure in the compartment immediately behind it to drop into the ground, after which it returns, in the course of the upward revolution of the wheel, to its original position. The intervals of space between the successive depositions of seeds and manure will depend, of course, on the degree of rapidity given to the driving-pulley; and in order that this may be varied at pleasure, the axis of the wheel I is made to shift in a slot, so that, by moving it forward or backward from the position in which
7 it is represented in Figure 1, a wheel may *may* be substituted for the present wheel K of a larger or smaller diameter, and the speed of the depositing-wheel be thereby proportionally diminished or increased; and, although I have now heretofore spoken of one coulter and depositing-wheel only, it is to be understood that any number of such coulters and depositing-wheels may be employed as the width of the machine will conveniently admit of. I think it right, also, to observe that I do not confine myself to the particular manner of constructing the depositing-wheel before described, but that the same may be varied in several ways to produce the same effect.

In Figures 7, 8, and 9, I have shown three different modifications of this wheel. In Figure 7, each door consists of two unequal parts, *v* and *x*, which turn on one common hinge, *w*; the longer part is the only one which opens outwards, while the shorter moves inwards on a pin, *d*, which traverses the slot *e*, and is made so much heavier than the other (as represented by the shading in Figures 6,) that it keeps the door con-

stantly closed while below the axis of the wheel, except at one
8 point only of the revolution, where it is required to be opened. The opening is effected by means of a projecting piece, *f*, attached to the coulter-cheek, which, catching the pin *d* as the wheel ascends, causes the heavy part *x* to move inwards in the direction of the slot *e*, and whereby throws open the longer and lighter part *v*, which allows the seed and manure to drop out. In the plan shown in Figure 8, the wheel is divided into ten compartments, five of which are closed and five left open, the closed and open compartments alternating with one another, and instead of one semicircular ward, like that before described, I make use of two wards W^1 and W^2, the former of which embraces nearly the entire half of the periphery of the wheel on one side, and the latter about one-fourth thereof on the other side. Three wards are fixed in such positions that they come into close contact with the face of the wheel as it revolves. and between them at top there is a space left for the mouth of the funnel, which supplies seed and manure. As the wheel revolves in the direction of the arrows represented in the drawing, and each open compartment comes under the funnel, it
9 obtains its requisite supply of seed and manure, which it retains, till, in passing round, it emerges from the semicircular ward W^1, when it discharges its contents into the ground. The plan shown in Figure 9 differs from Figure 7 in this only, that the compartments are reduced to six, and the whole of them left open. In Figures 3 and 4, the former of which is a side view, and the latter a back view of my improved machine, adapted to ridge-drilling, a depositing-wheel is employed, precisely similar to that represented in Figures 1 and 2, and before described, and the only difference consists in the gear-work, from which the motion is obtained, which is somewhat differently arranged, but as to which I claim nothing new.

Figure 3ª shows another variety of arrangement in respect to the gearing of a ridge-drill, but as to that also I claim nothing new.

And having now particularly described the nature of my said improved machine, and the manner in which the same is to be performed, I declare that what I particularly claim as the improvement of my invention is the seed and manure depositing wheel A, with its
10 appendages, whether the said wheel, with its appendages, *are* constructed of any of the particular forms represented in Figures 5, 7, 8, and 9, and before described, or of any other variety of form not essentially differing from the same, and producing substantially the same results, and whether the said wheel and appendages are used in combination with such other drill*ed*-machinery as I have represented in the drawings hereunto annexed, or in combination with any other description of drill-machinery whatever. And I declare that I claim a right to use my said improved machine, either for depositing the seed and manure conjointly by one and the same operation, or for depositing the seed only, or the manure only. And such my said invention being, to the best of my knowledge and belief, entirely new, and never before used within that part of Her said Majesty's United Kingdom of Great Britain and Ireland, called England, her dominion of Wales, town of Berwick-upon-Tweed, or in any of Her Majesty's colonies and plantations abroad, I do hereby declare this to be my specification of the same, and that I do verily believe this my said
11 specification doth comply fully and in all respects, without reserve or disguise, with the proviso in the said hereinbefore in part recited letters-patent contained. Wherefore I hereby claim to maintain exclusive right and privilege to my said invention.

In witness whereof I have hereunto set my hand and seal this twenty second day of May, one thousand eight hundred and forty.

[L. S.] RICHARD HORNSBY.

Dowdeswell. And be it remembered that, on the twenty-second day of May, in the year of our Lord 1840, the aforesaid Richard Hornsby came before our said lady, the Queen, in her chancery, and acknowledged the specifications aforesaid, and all and everything therein contained and specified in form above written. And also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the twenty-third day of May, in the year of our Lord one thousand eight hundred and forty.

J. H. S.

12 To the Commissioner of Patents:

The petition of R. S. Thomas, of Bennettsville, in the district of Marlborough, and State of South Carolina, respectfully represents:

That your petitioner has invented or discovered certain improvements in the manner of constructing a seeding-machine for the planting of cotton-seed, which have not, as he verily believes, been heretofore used or known, and that he is desirous that letters-patent of the United States may be granted to him therefor, securing to him and to his legal representatives the exclusive right of making and using and of vending to others the privilege to make or use the same agreeably to the provisions of the acts of Congress in that case made and provided, he having paid thirty dollars into the Treasury of the United States, and complied with other provisions of the said acts.

And I do hereby authorize and empower my agent and attorney, Theo. P. Jones, to alter or modify the within specification and claim as he may deem expedient.

R. S. THOMAS.

13 COUNTY OF WASHINGTON,
District of Columbia, ss:

On this third day of July, 1841, before the subscriber, a justice of the peace in and for said county, personally appeared the within-named R. S. Thomas, and made solemn oath, according to law, that he verily believes himself to be the original and first inventor of the within-described improvement in the seeding-machine for the planting of cotton; that he does not know or believe that the same has been before used or known; and that he is a citizen of the United States.

D. K. MORSELL, *J. P.*

To all whom it may concern:

Be it known that I, R. S. Thomas, of Bennettsville, in the district of Marlborough, and State of South Carolina, have invented certain improvements in the manner of constructing a seeding-machine for the purpose of planting cotton-seed. And I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing, Fig. 1 is a perspective view of
14 my machine, the hopper being removed for the purpose of exhibiting the other parts the more distinctly. A is the bed or basis of the machine, the lower side of which has its bearing on the ground.

The wheels B may be about a foot in diameter, extending down below the under side of A, to the distance of an inch and a half or two inches, only, so as to insure their revolution and that of the axis upon which they are fastened. *c* is the planting-roller affixed to the axle of the wheels B B; this roller may be about three or four inches in diameter, and the same in length. On its periphery it is provided alternately with ridges or teeth and with holes for the reception and the dropping of the seed in the planting of cotton-seed. Its perpetual agitation is absolutely necessary to the passing of the seeds into the excavations prepared to receive them in the planting-cylinder, as the rubbing them with clay, or other means adopted to prevent the entangling of their fibres, is not alone sufficient to cause them to descend with readiness into the excavations of the roller. *a* is one of the excavations on the roller *c*, for the reception of the seeds; these may be three-fourths of an inch in diameter and half an inch deep, more or less, and there may be three or four such on the face of the roller. *b* are the ridges formed along the roller, between the excavations, for the purpose of agitating the seed; these ridges may be converted into points, if preferred, but this is not necessary.

Fig. 2 represents the hopper inverted. The bottom *c c*, which rests upon the planting-roller, has a piece of leather or other elastic material, *d*, extended across it, which leather has an opening through it for the passage of the seed on to the roller. The edges of the leather surrounding the hole rest upon the planting-roller, and, from its elasticity, it adapts itself perfectly to said roller, and allows it to turn smoothly.

The rear part A′ of the bed is in a separate piece from the fore part, and is hinged to it, as shown at *e*. This rear part serves effectually to cover the seed with earth, and, being hinged, it moves out of the way of stones, or of other resisting substances.

Fig. 3 is a view of the under side of the machine. *f f* is a keel or ridged piece, which extends along from the fore end to the opening for the planting-roller, and this serves to open a furrow much more perfectly than can be done by a tooth or coulter, and tends also to keep the machine in a direct course. The piece A of the bed is cut away at *g*, behind the roller, to afford an opportunity for the collection by it of the loose earth which it is to deposite upon the seed.

Having thus fully described the nature of my cotton-planting machine, and explained the operation of the same, what I claim therein as new, and desire to secure by letters-patent, is the manner of constructing the seeding-roller with alternate ridges or points and excavations for the reception of the seed to be planted, the ridges or points operating as agitators, to keep the seed in motion and cause it to fall into the excavations.

I am aware that agitators have been frequently used within a hopper in seeding-machines, but these have been constructed in a manner much more complex than that employed by me, which method is perfectly effective and simple, not requiring any additional moving parts.

I claim the manner of forming the bed-piece in two parts, the rear part A′ being hinged to the forward portion in the manner described, and for the purpose of covering the seed that has been planted, and this I claim in combination with the ridge or keel-piece, for forming and preparing the furrow, said keel-piece extending along the bottom of the bed-piece.

I also claim the forming the bearing of the hopper upon the planting-

roller by means of a piece of leather, or other elastic material, in the manner set forth.

R. S. THOMAS.

Witnesses:
THO'S P. JONES.
B. K. MORSELL.

Ex'd. A. T.

2205. R. S. Thomas. Town of Bennettsville. Dist. of Marlborough. State of S. C. Cotton-seed planter. Rec'd July 6, 1841. Petition, Affidavit. Specification. 1 drawing. Model. Treasurer's cer-
18 tificate. $30. Examined. T. W. Donovan. July 19, 1841. Issue. J. W. Hand. July 24, 1841. Patented July 30th, 1841. Recorded vol. 15, page 249. (900 words.) Dr. Louis. C.

(Indorsed:) "Improv't in machine for planting cotton-seed."
(Referred to in the deposition of William C. Dodge, taken Nov. 16, 1865, at Chicago, Ills., & objection noted as not authenticated.

J. C. RILEY,
Notary Public.

19 To all persons to whom these presents shall come:

Be it known that I, Henry Todd, of Orford, in the county of Grafton, in the State of New Hampshire, have invented certain new and useful improvements in machinery for drilling or planting corn and seeds in general, of which the following description and accompanying drawings, taken together, constitute a full and exact specification.

Figure 1 of the above-mentioned drawings represents a top view of my improved planting-machine. Figure 2 is a side elevation. Figure 3 is a bottom view, and Figure 4 is a longitudinal, vertical, and central section of the same.

My first improvement consists in the peculiar mechanism for receiving the seeds and discharging them into the furrow made by the furrow-opener or plough; and for this purpose a chamber or hopper, A, (Figure 4,) is provided for the receptance of the seed to be planted. This chamber communicates by a passage or opening, B, (in its lower part,) with a supplying-chamber, C, arranged in rear thereof, as seen in
20 the drawings. Within this latter chamber an endless belt, D, having a series of small cups or receptacles *a a* fixed or attached on its exterior surface, is arranged so as to travel around upon horizontal cylinders or rollers E F, the lower roller F being revolved by means of a cross-belt, G, (see Figures 1, 2,) running upon a cone, H, of grooved pulleys fixed upon one extremity of the axis of the roller F, the said belt leading from another but reversed cone I of pulleys applied upon the shaft or axis of the furrow-roller K, to be hereinafter described.

As the machine is moved upon the ground, the endless belt is put in motion, and the seeds in the hopper, by means of the jarring and shaking of the machine, are caused to pass, as wanted, into the supplying-chamber, where they will stand generally at a lower level than in the hopper, and at such level or altitude in the said supplying-chamber as required for the action of the belt of cups. The revolution of the belt causes the cups to be successively filled with seed as they pass under the roller F, and to be discharged as they pass over the roller
21 E, the seed being thrown into the discharging-passage L, down which they fall by the action of gravity, and in their fall strike

upon the edge or upper surface of a belt, M, (which extends a short distance into the passage L, as seen in Figure 4,) and thus by the *revise* created thereby give information of the dropping of the seed. The discharging-passage is formed through the angular surface or clearing-board N, on which the above-mentioned apparatus is sustained; and the said discharging-passage terminates just in the rear of a furrow-opener or small plough O, secured to the under side of the clearing-board N, as seen in Figures 1, 2, 3, 4. The board N has its front end formed angular, as seen in Figures 1, 2, & 4, its angular faces or sides being shod or protected by bars or plates of iron suitably applied thereto. At a proper distance in rear of the furrow-plough, two coverers, P Q, are applied to the lower side of the surface-board N, their office being to return into the furrow the earth thrown up by the plough. The roller K, which compresses or rolls down the soil, is situated in rear of the coverers and the surface-board N. It is sustained by arms
22 R R, which. at their front ends, are jointed to supports S S, so as readily to move up and down in a vertical direction and thus permit the roller K to always rest upon the surface of the ground.

Handles T T are applied to the rear of the surface-board, and extend above the same, as seen in the drawings. A drag-beam V is connected to the front end of the surface-board, the horse or animal, by the power of which the machine is moved over the surface of the ground, being connected by a chain or other suitable means to the front end of the drag-beam.

The flat angular surface-board N clears the surface of the track of all obstructions to the correct action of the furrow-opener and cover's. Besides, it *guages* the depth to which the soil is to be penetrated, and is of advantage in many other respects.

I claim the combination with the endless belt and discharging-passage of the belt upon which the seeds are thrown in the manner and for the purpose described.

I also claim the combination of the flat angular clearing and
23 surface-board with the angular furrow-plough and coverers arranged upon its lower surface, the object of the said clearing-board being to remove any impediment to the correct action of the furrow-opener and coverers, and to regulate the depth to which the seed are to be planted.

In testimony that the above is a correct specification of my said invention, I have hereto set my signature this twenty-third day of September, of the year eighteen hundred and forty-three.

HENRY TODD.

Witnesses:
MARY M. WILCOX.
LEONARD WILCOX.

STATE OF NEW HAMPSHIRE,
County of Grafton, ss:

On this twenty-third day of September, of the year eighteen hundred and forty-three, personally appeared before me the above-named Henry Todd, and made oath that he does verily believe himself to be the first and original inventor of the improvements hereinabove specified, that he does not know or believe the same to have ever before been
24 known or used, and that he is a citizen of the United States of America.

LEONARD WILCOX,
Justice of Peace.

G. W. M.

To Hon. H. L. Ellsworth, Commissioner of Patents of the United States:

The petition of Henry Todd, of Orford, in the county of Grafton, of the State of New Hampshire, respectfully represents:

That your petitioner has invented certain new and useful improvements in machines for planting seeds; an exclusive property in which, for fourteen years, he is desirous of having secured to him by letters-patent.

HENRY TODD.

ORFORD, N. H., *Sept.* 23*d*, 1843.

To the Commissioner of Patents of the U. S. A.

SIR: I hereby constitute R. H. Eddy, of Boston, as my attorney and agent for procuring letters-patent for me on my improvements in seed-planters; and generally to do and perform such acts touching the procurance of said letters-patent, or the withdrawing of my application therefor, as he may deem expedient for my interest.

HENRY TODD.

ORFORD, N. H., *Sept.* 23*d*, 1843.

25

BOSTON, *Nov.* 29*th*, 1843.

SIR: Herewith you will receive the specification of Henry Todd, which it is hoped will be found acceptable.

Yours, respectfully,

R. H. EDDY.

Hon. H. L. ELLSWORTH,
Com'r of Patents, Washington, D. C.

P. S. I also return you the specification of Peter Love & Ephraim Buck, amended in its claim.

R. H. E.

(Endorsed:) Rec'd Dec. 1, 1843.

BOSTON, *Dec.* 4*th*, 1843.

SIR: The specification of H. Todd is herewith returned.

Yours, respectfully,

R. H. EDDY.

Hon. H. L. ELLSWORTH,
Com'r of Patents, Washington, D. C.

26 3381. Henry Todd, town of Orford, County of Grafton, State of N. H. Seed-planter. Rec'd Oct. 10, 1843. Petition, affidavit. Specification ret'd. 2 Drawings ret'd. Model rec'd, Nov. 11. Treasurer's certificate. $30, R. Examined, Cha's G. Page, Dec. 8, 1843. Issue, J. W. Hand, Dec. 9, 1843. Patented Dec. 15, 1843. Recorded vol. 21, page 537. Eddy. Spec. ret'd, Nov. 25, 1843. Spec. ret'd Dec. 1, 1843.

(Endorsed:) Imp't in seed-planters.

27 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of letters-patent granted to Absalom B. Earle, October 17th, 1848. Imp't in planting-ploughs.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this tenth day of May, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States the eighty-fifth.

[SEAL.] D. P. HOLLOWAY,
Commissioner.

28 No. 5858.

The United States of America to all to whom these letters-patent shall come:

Whereas, Absalom B. Earle, of Cole'ville, New York, has alleged that he has invented a new and useful improvement in planting-ploughs, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement; and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Absalom B. Earle, his heirs, administrators, or assigns, for the term of four-
29 teen years from the seventeenth day of October, one thousand eight hundred & forty-eight, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Absalom B. Earle, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand, at the city of Washington, this seventeenth day of October, in the year of our Lord one thousand eight hundred & forty-eight, and of the Independence of the United States of America the seventy-third.

JAMES BUCHANAN,
Secretary of State.

Countersigned and sealed with the seal of the Patent-Office.

[L. S.] EDMUND BURKE,
Commissioner of Patents.

30 The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that I, Absalom B. Earle, of Colesville, in the county of Brow*ne*, and State of New York, have invented a new & improved cultivator or seed-planting plough, and he does hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which Fig. 1 is a perspective view; Fig. 2 is an end elevation from the back, with the seed-box removed; Fig. 3 is a longitudinal elevation of

the seed-drum, a part being in section, and seed-box removed Fig. 4 is a side view of the seed-drum.

Similar letters refer to similar parts throughout.

The nature of my invention consists in the construction of an instrument which I denominate a planting-plough, because it performs
31 the office of ploughing and planting at the same time and in one machine.

The general appearance of my invention is that of a light broad-wheeled cart, on the floor of which I place the seed-drums, bags of seed, manure, &c., and to certain other parts I attach various ploughs, or rather the various descriptions of the mould-boards of ploughs, in the manner hereinafter described.

In Fig. 1 a perspective view of the entire machine is seen. The letter A represents the seed-box, and is a case open at the top and bottom, with a partition dividing it in two parts longitudinally. The box encloses the seed-drum, and the partition is rounded on the under side, so as to rest on the periphery of the drum. At the back part of the box, which is cut down a little lower, two narrow openings are made, through which two scrapers (*b b*) are put for the purpose of leveling the seeds which are taken in the seed-cups seen in the periphery of the drum. (*c*) is the seed-drum, and is a cylinder of wood or other suitable material suspended upon a shaft, and upon which it revolves. The
32 periphery is pierced with a series of holes for the purpose of receiving the seeds and conveying them to the delivering-spout. I have adapted a regulating stop to these, so as to increase or diminish their capacity at pleasure, or close them entirely up. This consists of a plug (*d*) inserted in the interior face of the drums, and forms the bottom of the seed-cups. If I want to reduce the number of seed-cups, I shove the plugs up flush with the top of the drum, and draw them in to regulate the depth of the cup as required. There are two rows of seed-cups around the drum, so as to take seeds from each side of the partition in the box (*a*.) The drum is placed upon the cart, so that its shaft shall lie parallel to the axle-tree of the same, and is made to revolve by means of cog-gearing upon it and the hubs of the wheels.

Beneath the seed-drum, and under the cart, there is a delivery-spout, (*e*,) which receives the seeds taken from the box (*a*) and drops them in the drill. The spout is divided by a partition to correspond with
33 the partition in the box (*a*.) At the bottom of the spout there are two clapper-valves (*e' e''*,) which close the spout on each side of the partition. These valves are kept shut by springs (*f*) placed in convenient positions under the framing of the cart, and are made to open alternately by means of pins (*g*) struck in the shaft of the seed-drum, so that they are opened and closed at each delivery of seed from the drum to the spout. The opening of the valves also operate' the clapper (*h*) of a bell, which is a signal of the time of each delivery of seed into the ground. A double mould-board plough goes a little in advance of the delivering-spout in order to open the drill for the seed; it has means of regulation so as to open the ground to the proper depth. The back part is narrower than the front by cutting away a part of its lower edge, and also is made to flare or spread apart considerably, the object of which is to throw off the lumps and equalize the surface of ground upon the drill. Immediately behind the spout there are two angular boards (*ii*) affixed for the purpose of closing the ground
34 over the seeds after they have been delivered from the spout. The closers are hinged at their front ends. The back edges can be raised or lowered by the rod (*i'*) so as to regulate the amount of soil to

be thrown upon the seeds. A beam extends across the front of the cart from the ends of which depend two posts, having a double mould-board plough (*m*) attached to each. These ploughs are so fixed as to advance immediately in front of the wheels of the cart, and opens the ground so as to form a level track for them to run in. At the back of the cart there are two handles, similar to plough-handles, so as to lift the tail of the cart, and set it in the position wanted.

The cart itself is built of any suitable materials and of convenient shape.

In operation the horse is harnessed in the shaves, and the machine brought up square with the border of the field to be planted, and adjusted by the handles behind. Seed is now put into the box, and by means of the partition two kinds may be planted at once: as, for instance, Indian corn on one side and pumpkins seed on the other.
35 Bags of each are also put on the floor of the cart to supply the box (*a*) as fast as wanted. One wheel of the cart is now lifted up by the handle at the back, and turned round by hand until the seed-drum deposits a cup of seed into the spout, and that into the ground, a stroke of the bell announcing the exact time. The sower then jumps upon the cart, and drives across the field to the opposite fence or border, the bell striking at each deposit of seed. If there are two kinds, as corn and pumpkins, one hill is planted in corn and the next in pumpkins, as in the usual way, and the valves on the spout open and close alternately to effect that object. The plough (*k*) advancing before the spout, opens the furrow to the required depth, the points going deeper in the ground than its sides. The sides flare off at the top to throw back the lumps and otherwise level the ground on each side of the furrows. The closers (*i*) cover the seed to the exact depth required. The ploughs (*m*) prepare a track for the wheels to run in so as to ensure their being always level. When the cart has crossed, the sower
36 jumps off, & raises the wheel to which the geering is attached for driving the seed-drums. While the horse is turning about, then as before he adjusts it at the required wi'th for the furrow, and turns the wheel until the bell has signalled the deposit of seed at the precise place. The cart is then started off as before. A boy may be used to drive and feed the seeds, while the sower follows on behind.

In the above description I have fully set forth the whole construction of a planting-plough both as to parts well known and those which I consider as of my invention and arrangement. The principal feature of novelty, however, in this machine, I would have understood to be in that part which relates to signalling the time each deposit of the seed is made, for, by this arrangement, the utmost certainty is obtained; as the sounds on the bell or other contrivance for making the sounds at once proves the deposit of seed at that place, for the signal is produced only when the valves (e' e'') open and they deliver the seed; any obstruction to the working of these valves is at once ascertained by
37 the cessation of sounds on the bell, and the plough can be immediately stopped until the defect is remedied, thus ensuring the full and regular planting of every field gone over by the machine.

In the above-described seed-planter I do not claim the seed-drums, ploughs, or means of operating the same, as these are all well-known devices; but what I claim as my invention and improvement, and desire to secure by letters-patent, is the combination of the signal-bell or other like indicator with the valves (e' e'') to announce the exact time

of depositing the seeds, substantially as described and set forth herein.

A. B. EARLE.

Witnesses:
J. L. KINGSLEY.
WILLIAM BECK.

38 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the specification and drawing in the matter of the letters-patent granted Jacob Mumma, Nov. 20, 1849. No. 6885.

In testimony whereof, I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this nineteenth day of July, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the ninetieth.

[SEAL.] D. P. HOLLOWAY.

Jacob Mumma, of Hummelstown, Pa. Letters-patent No. 6885, dated Nov. 20, 1849.

To all to whom these presents shall come:

Be it known that I, Jacob Mumma, of Hummelstown, in the county of Dauphin, and State of Pennsylvania, have invented certain
39 improvements in *seed* seed-drills, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying, and useing the same, reference being had to the accompanying drawings, making part of this specification, in which Fig. 1 is a *pre*spective view; Fig. 2, a vertical section.

The object of my invention is to secur*a* an equal distribution of seed in the drills, either in ascending or descending hills, to regulate the exact quantity sown per acre, and to distribute the seed in the drills, so that it will be more perfect in its growth, and yield more than those in ordinary use. The parts are constituted as follows:

There is a pair of carrying-wheels, *the* one of only is fixed to the axle, so as to cause it to turn with it; the other wheel being loose enable' the machine to turn readily. On the revolving axle there is a series of plain narrow rollers or pulleys, *b*, as many in number as there are teeth in the drill, one roller being over each tooth. A frame, *c*, is supported by said wheels, from which a pole projects to draw it by. The bearings of the
40 axle-journals are connected with the frame *c* by side plates *e*, so that the teeth can be raised or lowered to suit the soil in which it is worked. The hopper *f* is affixed to, and supported by, the same plate, so as to always maintain the same relative position to the pulleys or the axle. Over each of the pulleys *f* there is a mouth-piece of cast iron, showed detached in Fig. 3. The pulleys fits in a concave groove on the under side of this mouth-piece, through which there is a mortise covered in whole or in part by a slide, *g*, that fits into a recess made for it in the mouth-piece; which latter is attached to the of the hopper, and freely receives the grain from it. All the slides *g* project in front of the hopper and are connected with a horizontal shaft, *h*, by vertical arms. This shaft *h* is moved by a long lever, *i*, affixed near its center, that extends up, in a curved line over the hopper, and terminates in a handle, by which it is acted upon, to move the slides out. They are closed by

a spring, *k*, to regulate the quantity of grain sowed to the acre. I have a catch, *l*, with a series of notches on it, and affixed to a bar, *l'*, projecting up beside the lever *i*. The notches are determined and numbered to
41 the quantity of grain to the acre, thus: when the lever is put in notch 1, it will sow one bushel to the acre; when in 1½, it will sow one bushel and a half; and so on, to any other number. The teeth *m* are made hollow and with a broad base, say 4 inches across. They open the drill for the reception of the seed, and are firmly attached to the cross-beam of the frames *c* above, as clearly shown in the drawing. The teeth are braced by iron rods *n*, which are attached to the teeth in front, and extend up to a brace in an angular direction. These confine them in place behind the tenth tube *o*, and placed with their open end directly under the pulleys and receive the seeds and convey them down directly behind the teeth where they strike a conical plate, *p*, (see Fig. 2,) and are distributed equally in the drill. In all directions I deem this device very important in perfecting the sowing of the seed. When the sowing is to be stopped the lever *i* is to be thrown off and the slides are closed by the spring *k*. To the hind part of the frame *c*, a small trunk is jointed, with a long lever, *q*, attached to it, by which the whole seeding-apparatus is raised from the ground it is transported from place to place.

42 Having thus fully described my improvements, what I claim therein as new, and for which I desire letters-patent is, 1st, the combination of the plain pulleys *b*, mouth-pieces and slides *g*, operating as above set forth, for regulating the discharge of the grain.

Secondly. I claim the conic*le* plates *p*, at the lower end of the tubes, for distributing grain.

JACOB MUMMA.

Witness':
J. J. GREENOUGH,
N. H. HUTTON.

Ex'd. A. T.

43 *Re-issue No.* 1036.

The United States of America to all to whom these letters-patent shall come:

Whereas, George W. Brown, of Galesburg, Illinois, has alleged that he has invented new and useful improvement in seed-planters, for which letters-patent were issued to him, dated Feb. 2nd, 1853, which letters having been surrendered by him, the same have been cancelled, and new letters issued to him, dated Feb. 16, 1858, which last letters having been surrendered by him, the same have been cancelled, and new letters ordered to issue to him on five amended specifications, which he states has not been known or used, before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement; and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of fifteen dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose: These are therefore to grant, according to law, to the said George W. Brown, his heirs, administrators, or
44 assigns, for the term of fourteen years from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vend-

ing to others to be used, the said improvement; a description whereof is given in the words of the said George W. Brown, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this eleventh day of September, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which

Fig. 1 represents a perspective view of my seed-planting machine, arranged for automatic, or machine-dropping, as it is termed;

Fig. 2 represents a side elevation of the same;

Fig. 3 represents the same machine, arranged for hand-dropping;

Fig. 4 represents a side elevation; and

Fig. 5 a top plan of the machine, as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings. Corn is planted at that season of the year when the soil is moist and
46 soft; and on the rich soils of the West it is slippy and mucky in many places as to make what is known as machine-planting impossible. As the wheels or their axles are the motive-power by which the seed-slides are operated, and as these wheels do not, owing to their slip, advance the machine or with the machine regularly over the fields, the spaces between the hills or rows are not uniform or in line. This makes the after-cultivation of the corn very difficult, as the cultivator, moving on a direct line, throws up many of the planks. In drier or more sandy and less sticky soils, automatic or machine-planting may be done. My machine is applicable to either use, and to any of the soils; it having peculiar characteristics, which make it applicable to either the machine or the hand-planting. The object and purpose of this part of my invention relates to hand-planting machines, in which the person who operates the seed-slides sits or rides on the machine in a convenient position for overlooking his work, and governing his motions by the previously made furrow or marks on or in the ground, so as to preserve regular rows, hills, or spaces between the rows or hills. And this part of my invention consists, first, in a seed-planting machine constructed principally of frame work, the front part of which is
47 supported on not less than two runners or shoes, and the near part supported on not less than two wheels, the wheels being

arranged to follow in the line of the runners, for a purpose to be hereafter described. To enable others skilled in the art to make and use my invention, I will proceed to describe the same, with reference to the drawings. A A represents a pair of runners or shoes, properly braced apart by cross-braces B C D, in any manner that will make them sufficiently rigid, and at a distance from each other equal to that between the rows or hills of corn. E is a tongue united to the cross-pieces in any of the usual modes, so as to be midway between the pair of runners or shoes. To this tongue, which may be said to constitute a part of the frame of the machine, the double-trees F, to which the team is hitched, is fastened. The seed-hoppers G G are secured to this frame immediately over the rear of the runners. The seed-slides or valves A, that allow the grains in measured or regulated quan'ities to pass out of these hoppers, and into the gash or furrow prepared for them by the runners or shoes, are connected together by a bar, *b*, to which a lever, *c*, or its equivalent is attached; so that the attendant from his seat or stand H, may readily see the previously made marks
48 in or on the ground, and operate the lever *c*, to make the droppings conform thereto. To the side-pieces I of the frame are connected two bars or levers J, (one only being seen but both alike,) by a pivot-pin or hinged-joint at *d*, at their front ends, and at their rear ends they slip over the journals of the rollers or wheels K. To these journals are also attached, by dead-eyes or bearings, the stirrup-straps *e*, to which the pieces L L are attached, the rear ends of said pieces L being connected by a cross-bar, which the driver, who walks in the rear of the machine, may catch hold of and by raising it up also raise up the rollers, or by pressing it down raise up the runners or shoes out of the ground. The side-pieces L are hinged to the cross-piece D of the front frame by bolts passing through slots, as at S or otherwise, so that the rollers may rise and fall without disturbing the runners, or so that the runners may yield or move independently of the rollers. This constitutes mainly the frame-work, which is simple, cheap, strong, and efficient for every purpose. The notch *g* in the front ends of the runners, and the lugs *h i j* connected to the cross-bar D, are for the purpose of applying the auxiliary wheels N N, and converting the ma-
49 chine from a hand to a mechanical dropper. But as this constitutes another branch or division of my invention, I will but briefly refer to them here.

When the wheels N N are to be used, the two bars *o o*, on which the boxes or bearings K for the axle P are placed, have their eye or loop *l* at their front ends hooked over the notches *g g*, respectively, and the rear ends of these bars *o o* have arms or levers, *m*, fastened to them, and which levers have their fulcra at *h j*, and their free ends meet in a guiding and supporting piece, *i*, where, by means of a pin and adjusting holes, they may be regulated so as to raise and lower and hold at any proper height the rear ends of said bars *o o*, and consequently raise, lower, or hold the wheels N N on them at such regulated height. The wheels and axle being thus placed, a pin, *n*, in the lever *c* takes into the zigzag *o*, on the axle, and the seed-slides or valves are then operated automatically, and the attendant, riding on the machine, is then dispensed with. The shoes or runners A have an upward inclining edge, *p*, and a point, *g*, sufficiently big or raised, as that it will climb up and over, or cut or break through any ordinary intervening obstacle, and it is thin enough so as not to be required to force the earth materi-
50 ally in a lateral direction; it widens out gradually towards its rear end, so as to open a gash or furrow for the seed to drop into.

I prefer to make the seed-duct or tube *r*, in the rear of the shoe or runner, as then the runner will be certain to hold open the gash or furrow until the seeds are dropped into it. The seed-duct should at least follow the furrow-opener, near, or close enough to allow the seeds to drop into it, before the loose earth runs in and fills it. A runner thus made causes but little friction in passing through the earth or soil, and as it is thin and smooth, the muck does not cling to it and choke it up, as it would do, were it of a wedge form, as heretofore used, with a vertical edge and requiring much lateral forcing of the earth to open up a furrow. The hinge-joint at *d* admits of the runners A being raised up out of the ground to pass any obstacle, but particularly in turning the machine around at the ends of the furrows; for unless then raised up, it would strain them very much, or its tongue or frame, as said runners or shoes are generally sunk at their rear ends several inches in the soil. In thus raising up the seeding part of the machine or the runners, the tongue E, the
51 point of which is attached to the necks of the team, is one fixed point, (in relation to the ground,) and the wheels K K make another fixed point, so that by using the lever M, the shoes are raised up and suspended on these fixed points, and it is immaterial whereabouts between these fixed points the hinge-joint is, so that the runners are suspended and carried by the point of the tongue and the wheels K.

The attendant, sitting upon his seat H, can readily see the previously-made furrow or mark, and as the seed-ducts come to the proper point, he shifts his lever, allowing a charge of grain to leave each hopper and pass down into the furrows prepared for them; the rollers K, following after the shoes or runners, close up and press the earth down over the seeds so planted.

This makes, as I allege and believe, and as has been proven, the best corn-planting machine ever devised, for it is cheap and efficient, not being subject to the many difficulties incident to other machines for a similar purpose. Where it is best known it is almost universally used, and I believe that I am safe in saying, that it is the first and only entirely successful machine for planting corn in a workmanlike manner, in the loamy, mucky soils of the West.

By a machine, composed mainly of frame-work, I mean a machine without gearing, without spoked wheels and other expensive fixtures,
52 and resembling a drag or sled more than it does a carriage or wagon in its main or general construction. The only wheels I use, though bearing-wheels to a certain extent, are covering-wheels, and thus perform two functions. *r r* are buttons, having one thick and one thin edge-shaped end. By turning these buttons so that their thick or their thin ends or portions come under the bar D, they define the extent of motion between the hinged part of M and the seeding-frame; by turning the buttons entirely out or away from the bar D, another adjustment is had.

Having thus fully described the nature and object of my invention, what I claim under this patent is, a seed-planting machine, constructed principally of frame-work, the front part of which is supported on not less than two runners or shoes, with upward inclining edges, and the rear part supported on not less than two wheels, the latter being arranged to follow the former, substantially as and for the purpose set forth.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

(Indorsed:) 1036. Rec'd & filed Dec'r 27, 1866. E. W. W. G

53 Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him February 2, 1853; re-issued February 16, 1858; and again re-issued September 11, 1860, (No. 1036,) the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful arts and to repeal all acts and parts of acts heretofore made for that purpose;" and the act approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office, and for other purposes," did, on this 1st day of February, 1867, decide that said patent ought to be extended: Now, therefore, I, Thomas C. Theaker, Commissioner of Patents, by virtue of the power vested in me by said act of Congress, do renew and extend the said patent, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 2nd day of February, 1867; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof I have caused the seal of the Patent-Office to be hereunto affixed, this 1st day of February, 1867, and of the Independence of the United States the ninety-first.

[SEAL.] T. C. THEAKER,
Commissioner.

54 *Re-issue No.* 1037.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated Feb. 2nd, 1853; which letters having been surrendered by him, the same have been cancelled and new letters issued to him, dated Feb. 16, 1858; which last letters having been surrendered by him, the same have been cancelled and new letters ordered to issue to him on five amended specifications,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose: These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or
55 assigns, for the term of fourteen years from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this eleventh day of September, in

the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.

[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

The schedule referred to in these letters-patent and making a part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare the
56 following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which —

Fig. 1 represents a perspective view of my seed-planting machine, arranged for automatic or machine-dropping, as it is termed;

Fig. 2 represents a side elevation;

Fig. 3 represents the same machine, arranged for hand-dropping of the same;

Fig. 4 represents a side elevation; and

Fig. 5 a top plan of the machine as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference where they occur in the several figures, denote corresponding parts of the machine on all the drawings.

In opening up a furrow in the ground into which corn is to be dropped from a machine, an instrument is required which should have three prerequisites: first, it must incline upward at its front edge, so as to climb up and over, or cut or break through such intervening obstacles as are usually met with in planting corn; second, it must be capable of opening a furrow without much lateral displacement of the soil, as it requires much power to do so, and besides the soil, if mucky, as it is apt to be at the season of the year when corn is planted, will cling to the furrow-opener, and thus instead of a clean, smooth, gash, the
57 furrow is rough and uneven; third, it must glide through the soil more like cutting with a knife than tearing it apart, and thus prevent any clinging of soil thereto, and keeping itself smooth and bright; and, fourth, it must be long enough to form a support for the frame to be carried by it. Such an instrument, for such purpose, I have devised. And the nature of this invention may be stated as follows, viz, the construction and use in connection with a corn-planting machine of a runner or shoe preceding a planting-device, said runner or shoe being made with an upward-inclining edge, and the point thereof sufficiently high or raised that it will climb up and over, or cut or break through intervening obstacles without materially forcing the earth in a lateral direction at its front part, but widening towards its rear end, so as to open out a gash or furrow in which to deposit the seed, as will be explained.

The shoe or runner A, is made thin enough to easily penetrate the ground at its lower edge, and has an upward-inclining edge, *p*, which raises high enough to climb over, or break or cut through any ordinary intervening obstacle, such as clods, stalks, or sod. It is thin

enough so as not to be required to force the earth materially in a lateral direction, and keeps the bright and smooth. It widens
58 out gradually towards its rear [1037, rec'd & filed Dec. 27, 1866, E. U. U. G.,] end, so as to open a gash or furrow for the seed to drop in. I prefer to make the seed-duct or tube *r* in the rear of the shoe or runner itself, so that the runner will be certain to hold open the furrow it makes until the seeds are dropped into it. The seed-duct *r* should at least follow the furrow-opener close enough to prevent the earth from running into and filling the gash or furrow before the seeds are deposited into it. A runner or shoe thus made causes but little friction in passing through the earth or soil, and as it is thin and smooth, the muck does not cling to it and choke it up, as it would do were it of a wedge form with a vertical edge and thick rear which must force the earth laterally to a great extent. The manner of connecting such shoes or runners with a seeding-machine is fully shown by the drawings. Their length must be sufficient to support the frame that is to be carried by them without being forced too deep into the soil, as would be the case with a sword-shaped cutter.

Having thus fully described the nature and object of my invention, what I claim under this patent is the construction of a shoe or runner for seed-planting machines with an upward-inclining edge, and its point sufficiently high or raised as that it will climb up and over, or
59 cut or break through intervening obstacles, without materially forcing the earth laterally at its front part, and widening towards its rear end so as to open out a gash or furrow in which the seed to be planted may be deposited, and long enough to furnish a support to the frame-work, substantially as described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him February 2, 1853, and again re-issued September 11, 1860, (No. 1037,) the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose;" and the act approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office and for other purposes," did, on this 1st day of February, 1867, decide that said patent ought to be extended: Now, therefore, I, Thomas C. Theaker, Commissioner of Patents, by virtue of the power vested in me by said
60 act of Congress, do renew and extend the said patent, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 2nd day of February, 1867; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law, as though the same had been originally granted for the term of twenty-one years.

In testimony whereof I have caused the seal of the Patent-Office to be hereunto affixed, this 1st day of February, 1867, and of the Independence of the United States the ninety-first.

[SEAL.] T. C. THEAKER,
Commissioner.

61 *Re-issue No.* 1038.

The United States of America to all to whom these letters-patent shall come:

Whereas, George W. Brown, of Galesburg, Illinois, has alleged that he has invented new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated Feb. 2nd, 1853; which letters, having been surrendered by him, the same have been cancelled, and new letters issued to him, dated Feb. 16, 1858; which last letters, having been surrendered by him, the same have been cancelled, and new letters ordered to issue to him on five amended specifications,) which, he states, has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor, or discoverer, of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and
62 presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given, in the words of the said George W. Brown, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this eleventh day of September, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the
63 eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of my seed-planting machine, arranged for automatic or "machine dropping," as it is termed;

Fig. 2 represents a side elevation of the same;

Fig. 3 represents the same machine arranged for hand-dropping;

64 Fig. 4 represents a side elevation; and

Fig. 5, a top plan of the machine, as arranged for hand-dropping, as shown in Fig. 3.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine, in all the drawings.

In a seed-planting machine that is composed mainly of frame-work, and that is supported by and carried on not less than two runners, and not less than two wheels, it is important that there should be a joint somewhere between the supporting points of the machine upon the ground, for several reasons; and among them I mention the following, viz, that one part of the machine may be raised, lowered, adjusted, or supported on the other part of the machine, for defining the depth of the planting, for passing over intervening obstacles, and for turning the machine around at the end of the rows or furrows.

The nature of this part of my invention consists in combining with a seed-planting machine, constructed principally of frame-work, and with not less than two runners and two wheels, a hinged-joint between the point of the tongue and the rear part of the machine, or between
65 what I term its ground-supports,) so that one part may, by means of said hinge-joint, be raised, lowered, adjusted, or supported on the other part, for purposes herein mentioned; meaning by "one part," and "the other part," the part in advance and the part in rear of said hinge-joint. To enable others, skilled in the art, to make and use this invention, I will proceed to describe the same with reference to the drawings. A A represent a pair of runners or shoes, properly braced apart by cross-pieces B C D, in any manner that will make them sufficiently rigid, and at a distance from each other equal to that between the rows or hills of corn, or other seeds to be planted. E is a tongue united to the cross-pieces, in any of the usual modes, so as to be midway between the pair of runners, to make a centre draught. To this tongue, which may be said to constitute a part of the frame of the machine, the double-trees F, to which the team is hitched, is fastened. The seed-hoppers G G may be secured to this frame, immediately over the rear of the runners. The seed-slides or valves *a*, that allow the grain, in measured quantities, to pass out of these hoppers
66 and into the gash or furrow prepared for them by the runners, may be connected together by a bar, *b*, to which a lever, *c*, or its equivalent, is attached, so that the attendant, from his seat or stand, H, may readily see the previously-made marks in the ground, and operate the lever *c* to make the droppings conform thereto.

To the side-pieces I of the frame, are connected two bars or levers J J, (one on each side,) by a pivot-pin or hinge-joint at *d*, at their front ends, and their rear ends supported on the journals of the rollers or wheels K, said journals acting as the fulcra of said levers J. To these journals may also be connected the stirrup-straps *e*, to which the pieces or levers L L are attached, the rear ends of the pieces L being connected by a cross-bar, M, which the driver or attendant may seize, and, by raising it up, or pressing it down, correspondingly lower or raise the pieces I, and, through them, the runners A, by means of the fulcra, or supports on the wheels K, and the hinged connections. The pieces L extend forward of the braces or stirrups *e*, and have a yielding or hinged connection with the cross-piece D, by a bolt
67 and a slot at *f*, or otherwise, so that the rollers or wheels may rise and fall in passing over the usual inequalities of the ground, without disturbing the runners or shoes. This constitutes, mainly, the frame-work, which is simple, cheap, strong, and efficient, and possessing the property of allowing that part in front of the joint, and that part in

rear of it, to accom'odate themselves, independently of each other, to the natural roughness of the ground, whilst at the same time the operator, by means of the levers L L and their connections, can raise up, lower, carry, support, or adjust one of the frames upon the other at pleasure, as follows:

The hinge-joint at *d* admits of the runners A being raised up out of the ground to pass any obstacle, but particularly facilitates the turning around of the machine at the ends of the furrows; for, unless then raised up, it would strain the machine very much, as the heels of the runners are sunk several inches in the ground, and offer considerable resistance in turning. In thus raising up the seeding-part of the machine or the runners, the tongue E, the point of which is attached to the necks of the horses, is one fixed point, and the wheels K
68 are the other fixed or supporting points; so that by using the lever M the shoes are raised up, and suspended, (if necessary,) on these fixed points. It is immaterial whereabouts, between these fixed or bearing points the hinge-joint is located, so that the runners are suspended, carried, or controlled by the point of the tongue and the wheels K, through the hinge-joint and the lever connections between.

Having thus fully described the nature and object of my invention, what I claim under this patent is, in combination with a seed-planting machine, constructed principally of frame-work, with not less than two runners, and not less than two wheels, a hinged-joint between the point of the tongue and the rear part of the machine, so that one part of the frame-work may be raised, lowered, adjusted, or supported on the other part, substantially as described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

69 Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him February 2, 1853; re-issued February 16, 1858; and again re-issued September 11, 1860, (No. 1038,) the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose;" and the act approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office, and for other purposes," did, on this 1st day of February, 1867, decide that said patent ought to be extended:

Now, therefore, I, Thomas C. Theaker, Commissioner of Patents, by virtue of the power vested in me by said acts of Congress, do renew and extend the said patent, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 2nd day of February, 1867; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been
70 originally granted for the term of twenty-one years. In testimony whereof, I have caused the seal of the Patent-Office to be hereunto affixed, this 1st day of February, 1867, and of the Independence of the United States the ninety-first.

[SEAL.] T. C. THEAKER,
Commissioner.

71 *Re-issue No.* 1039.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated February 2nd, 1853; which letters having been surrendered by him, the same have been cancelled, and new letters issued to him, dated February 16, 1858; which last letters having been surrendered by him, the same have been cancelled, and new letters ordered to issue to him on five amended specifications,) which he states have not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of four-
72 teen years, from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand at the city of Washington, this eleventh day of September, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

[SEAL.] JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.

[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

73 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of my seed-planting machine arranged for automatic or "machine dropping," as it is termed;

Fig. 2 represents a side elevation of the same;

Fig. 3 represents the same machine arranged for hand-dropping;

Fig. 4 represents a side elevation; and

Fig. 5, a top plan of the machine as arranged for hand-dropping, as shown in Fig, 3.

Similar letters of reference where they occur in theseveral figures, denote corresponding parts of the machine in all the drawings.

It has been customary in seed-planting machines, in which the seed slides were operated automatically from some of the moving parts of the machine, to mount the driver or conductor upon the machine. And it has also been customary to have the man who
74 operates the seed-slides (when operated by hand) walk along behind or with the machine. I, of course, lay no claim to these things. I have discovered, however, that to mount the operator of a hand-planting machine upon the machine itself, where he can see the previously-made marks upon the ground and work his seed-slides, so as to drop the charge or charges of seed in exact conformity thereto, not only relieves him of much of his onerous duty, but enables him to do better work and plant with more regularity, regular planting, that is, planting in straight rows or hills, making the cultivation of the young plants by machines much more certain and easy, and without throwing out or covering up such plants as would be outside of a regular line.

The nature of this part of my invention consists in so constructing a seed-planting machine wherein the seed-dropping mechanism is operated by hand, in contradistinction from "mechanical or machine dropping," the so mounting of the operator upon said machine, as that he may readily and distinctly see the previously-made marks upon the ground, and operate the dropping mechanism to conform thereto. And my invention further consists in combining with a seed-planting machine, composed substantially of frame-work, and upon which the person who works the seed slides or valves by hand sits or stands, a lever, or its equivalent, by which the driver who manages the team may raise or lower that part of the frame that carries the operator of the seed-
75 ing-apparatus, and thus ease the machine in passing any intervening obstacles, or in turning it around. To enable others skilled in the art to make and use this invention, I will proceed to describe the same with reference to the drawings:

H represents a seat or stand, which is occupied by the person who works the seed slides or valves. This seat is supported upon the frame-work of the machine, and is so placed that the occupant of it can readily see the seed-dropping mechanism, as also the previously-made marks upon the ground, which guide him in his operations. The operator holds in his hand a lever, *c*, which is connected with the seed slides or valves, and when he sees that the hoppers or seed-ducts are in the line of the previously-made marks or rows, he moves his lever and causes a charge of seed to fall from the hopper or tubes into the furrow, or gash made by the furrow-opener.

I found my invention upon the assumption that corn, upon mucky or prairie soils, cannot be planted with regularity by machinery, that is dropped automatically, for the slipping of the wheels and the clogging and choking of such parts as are used in connection with corn-dropping machines, causes so much irregularity, as to make the after cultivation of the plants by machinery almost, if not entirely, impossible, without great loss by throwing out or covering up the plants. I drop the seeds by hand through proper mechanism, and, that the operator may readily see his work, and not guess at it, I place him on the machine,
76 where he rides, and I believe I am the first to mount the man who plants by hand on the machine that prepares the furrow,

carries the seed, and covers it up, everything being mechanical, except simply the dropping of the seed. I do everything that can be well and properly done by machinery by such mechanical devices as are herein shown. The planting, or, rather, dropping of the seed which I allege cannot be properly done by machinery, I do by hand, and by the hand of a person who rides upon the machine.

In the drawings I have shown an entire seeding-machine, to which the operator's seat or stand, and the lever by which he operates the seed-slides, are affixed.

From these drawings and positions, the whole thing will be readily understood and the application of them made. In a machine, however, upon which the person who operates the seed-slides rides, it is essential that some provision be made for easing the machine over intervening obstacles and in turning it around. For this purpose, I connect with the frame-work B C D, &c., a second frame-work J *e* L M. The seed-slide operator may ride on the first-named frame-work, and the second attendant or driver, by pressing down upon the cross-bar M, can raise up the other part with the attendant upon it, and thus ease the runners. These two frame-works, or, rather, parts of frame-work, constitute the main frame, which is supported by the runners A and wheels K, and sometimes partially supported upon the tongue, which, being
77 rigid on the frame B C D, may itself be called a part of that frame, whilst it also does the duty of tongues ordinarily. The weight of the person who works the seed-slides is important at times to hold the furrow-openers to or in the ground, and when his weight becomes a bar or preventative to the machine, other duties, viz, of mounting over obstructions, or in turning around, I have provided a means, as above described, of counteracting his weight by throwing a portion of it upon the wheels and tongue, and suspending the seeding-mechanism to them; or, in other words, removing the weight from the runners and its frame, (except the tongue,) and throwing it upon the wheels and tongue, thus putting the work, as well as the control of the machine, entirely under the supervision and direction of the attendants, and leaving nothing that requires judgment and skill to the machine itself.

Having thus fully described the nature and object of my invention, what I claim under this patent is in a seed-planting machine, wherein the seed-dropping mechanism is operated by hand, or by an attendant, in contradistinction from "mechanical dropping," the mounting of said attendant upon the machine in such position that he may readily see the previously-made marks upon the ground and operate the dropping-mechanism to conform thereto, substantially as herein set forth.

I also claim, in combination with a seed-planting machine, composed substantially of frame-work, and upon which the person who works the
78 seed slides or valves sits or stands, a lever, or its equivalent *equivalent*, by which a driver or second attendant may raise or lower that part of the frame-work that carries the attendant and the seeding-devices, and thus ease the machine in passing over intervening obstacles, or in turning around, substantially as described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

79 Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him February

2, 1853; re-issued February 16, 1858; and again re-issued September 11, 1860, (No. 1039,) the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose;" and the act, approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office, and for other purposes," did, on this 1st day of February, 1867, decide that said patent ought to be extended:

Now, therefore, I, Thomas C. Theaker, Commissioner of Patents, by virtue of the power vested in me by said acts of Congress, do renew and extend the *the* said patent; and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 2nd day of February, 1867; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof I have caused the seal of the Patent-Office to be hereunto affixed, this 1st day of February, 1867, and of the Independence of the United States the ninety-first.

[SEAL.] T. C. THEAKER,
Commissioner.

80 *Exhibit F to deposition of Lester L. Bond.*

The U. States Patent-Office to all whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the files of this office, of the file-wrapper and contents in the matter of the letters-patent granted Geo. W. Brown, Aug. 2, 1853; (antedated Feb. 2, 1853.) No. 4893.

In testimony whereof, I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this fifteenth day of February, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States, the eighty-ninth.

[SEAL.] D. P. HOLLOWAY.

81 No. 4893. George W. Browne, of Tylersville, county of Warren, State of Illinois.

Seed planters.

Rec'd Dec'r 6, 1852.
Petition " " "
Affidavit " " "
Specification " " "
2 drawings " " "
Model " " "
1 cert. dep. $30 " " "
Cash
2 Examined L. D. Gale, 20 July, '53.
Issue O. B. Little, " " "
3 Patented Aug. 2, 1853.
Antedated Feb'y 2, 1853.
Recorded vol. 52, page 29.

Spec. & 1 dr. ret. (want of corres. will model and of formality) June 13, 1853.

Spec. & 1 dr. ret. 18 July, 1853.

(Endorsed:) Im'p't in seed planter.

82 To the Commissioner of Patents:

The petition of Geo. W. Brown, of Tylerville, in the county of Warren, and State of Illinois, respectfully represents:

That your petitioner has invented new and useful improvements in "seed-planters," which he verily believes has not been known prior to the invention thereof by your petitioner:

He, therefore, prays that letters-patent of the United States may be granted to him therefor, vesting in him the exclusive right to the same, upon the terms and conditions expressed in the act of Congress, in that case made and provided; he having paid thirty dollars into the Treasury, and complied with the other provisions of the said act.

GEORGE W. BROWN.

83 To all whom it may concern:

Be it known, that I, George W. Brown, of Tylerville, in the county of Warren, and State of Illinois, have invented new and useful improvement in seed-planters, for planting corn and smaller grains, and have incorporated said improvements into a machine called the "Illinois seed-planter," and I do hereby declare that the following is a full, clear, exact description of the construction and operation of the same, reference being had to accompanying drawing, making a part of this specification, in which—

Fig. 1 is a rear view in elevation from the rear of the machine when fitted for drilling grain;

Fig. 2, side view in elevation when fitted for drilling;

Fig. 3, top or birds-eye view when fitted for drilling seed;

Fig. 4, top or birds-eye view, when fitted for planting in checked rows, having the wheels removed;

Fig. 5, side view when fitted for planting in checked rows.

84 Similar letters of reference, indicate like parts in each of the several drawings.

To enable others skilled in the art to make & use my invention, I will proceed to describe its construction and operation:

A is the tongue of the machine.

B, cross-bar, which is bolted to the rear end of the tongue, & supports the hopper & seat-board.

C, seat-board on which the person rides while planting in checked rows.

D, hopper to hold the seed which is to be planted.

E, cutters, which are in the shape of sled-runners, so as not to clog, and are sharp so as cut the weeds and straw. It has also a double flange in the rear, of dove-tail form, so as to part the earth smoothly, & it is capped at the rear so as to form a tube nearly to the heel of the cutter; through this tube the seed passes to the earth.

F, tube just described.

G, the horizontal wheels in the bottom of the hopper. It has a variety of sized holes (H) to suit diffierent kinds and sizes of grain, so as to graduate the quantity to be planted as desired; these holes being in pairs, the oscillating motion of the wheels passes one of
85 these holes under a stationary cap, dropping its portion of seed into the tube (F,) while the mate hole, being out from under the cap, receives a portion of seed, and the cap graduates the amount of seed it carries to the tube in its turn by the oscillating motion of the wheel (G.)

(I), Fig. 6, the stationary cap under which the holes are to operate as just described.

(J), Fig. 5, the slot for drilling small grain. Its operation is like the pairs of holes (H), and cap (I), Fig. 6, but when drilling grain is to be done, the pin (K), Fig. 6, is screwed into cap (I), so that its point will extend through cap (I) into the slot, and so prevent the seed from
18 July, '53. S. Breed. clogging in the slot. But in planting checked rows, this screw only extends down to wheel (I); (L), the slide, which is screwed into the edge of slot (J,) and it is to be moved back or forth
Breed. so as to cover as much of the slot as will admit just the quantity of seed required to be drilled.

(M), stationary pins, 4 to each wheel, extending up from wheel (G), for the purpose of distributing the seed and moving it towards the holes and slots.

86 (N), Fig. 5, the connecting-rod, which has pins fitted into holes (O) in each wheel to give them their oscillating motion.

(P,) the lever, which is hung on a pin to the seat-board (C), and by another pin to the connecting-rod (N). This lever is moved to & fro, in planting checked rows, by the person who rides on the seat-board (C). Each motion deposits two hills of seed. Previous to planting in checked rows, the ground must be marked off one way, thus to enable the operator to deposit the hills so that the rows will cross each other at right angles.

(Q), four short levers hung by a hinge to each side of the seed-box, and the rear end united by the pieces (RR), which are double-vibrating braces ( ), extending down on each side of the planting-wheels (SS),
18. D. Breed. and the axles of those wheels SS pass through the lower ends of braces (RR) & (QQ)

June, '53, D. Breed. (UU), two flat levers hung by hinges to cross-bar B, and the rear ends of these leavers are bolted to cross-bar (T), then
87 the braces or pieces (RR) rest under these flat levers on bolts at *h h*, so that by pressing downward the cross-bar (T) the levers (UU) will raise the cutters clear from the ground, the braces and wheels just described being the fulcrum, the weight of cross-bar (T), together with the vibrating motion of planting-wheels (SS) will press the earth on to the seed as nearly equal on uneven grounds as on smooth.

Directly in the rear of the hinge on leavers (U U) is a button (*f f*) which, when one end is turned between the leaver & cross-bar (B), will raise the cutters to one depth of cut, & when the other end is in the same place it will raise the cutter to another depth; and when neither end of the button is between the levers & the cross-bar (B), the cutters will run another depth, thus enabling me to plant these different depths.

(V V,) wheels on which the planter is mounted for drilling grain.

(W,) axle which turns with wheels (*b b.*)

(X X,) two bars through which the axles of the wheels pass at (*y y*) to sustain the planter.

(Z Z,) slots in the front end of the bars (X X,) which lock on
88 to the front end of the cutters (E) by elevating the bars (X X) when (X X) are depressed, the locks at (Z Z) being complete.

The lever-bars (*a*) are attached to the rear ends of (X X) and swing on a pin in fulcrum-post (*b*,) the longer ends of the lever-bars (*a*) interlock at post (*c*,) which fits both sides of the ends of lever-bars (*a*) leaving them free to move perpendicularly, so that when the ends of lever-bars (*a*) are elevated, the levers raise the planter from the earth, or if partially elevated, it will cause the planter to drill grain more shallow; and pin (*d*) (Fig. 1) is moved to holes (*c*) in order to sustain the planter in the position desired.

Lever (*v*) has a friction roller or pin, (*e*,) on its side which plays in a zig-zag groove on the axle (W) for the purpose of oscillating the wheels (G) when drilling grain.

What I claim as my invention and desire to secure by letters-patent is—

1st. Oscillating horizontal wheels in the bottom of the hoppers, having slots & holes of various sizes, in combination with stationary
89 caps & pins for the discharge of different kinds and qualities of grain, substantially as described.

2nd. The manner of oscillating the horizontal wheels, substantially as described.

3rd. The combination of cutters & tubes to deposit seed without interruption from weeds, &c., substantially as described.

4th. The method of operating the planting-wheels so as to give the earth an equal pressure & to raise the cutters when the machine is being turned around and to regulate the depth of the planting, substantially as described.

5th. The method of mounting the planter on other wheels for the purpose of drilling seeds, and its mode of operation, substantially as described.

GEORGE W. BROWN.

Witnesses:
GEORGE R. WEST.
A. B. STOUGHTON.

Claims amended 20 July, 1853, at a personal interview with the applicant at the date.

L. D. GALE.

What I claim as my invention is—

90 1. The oscillating horizontal wheels or distributors in the bottom of the hoppers, having slots and holes of various sizes, in combination with the stationary caps & pins for the discharge of different kinds & qualities of seeds, as set forth.

2. I also claim the arrangement of the covering-rollers, mounted as described, and performing the purpose of covering the seed, elevating the cutters in turning around, and also in adjusting them to different depths, as set forth.

STATE OF ILLINOIS, *Knox County, ss:*

On this 27th day of September, A. D. 1852, before me, the subscriber, judge of the county court within and for said county and State, personally appeared the within-named George W. Brown, and made solemn oath that he verily believes himself to be the original and first inventor of the mode herein described for plainting corn and small grain, and that he does not know or believe the same was ever before known or used, and that he is a citizen on the United States.

G. C. LANPHERE,
Judge of Knox County Court.

91 GALESBURG, KNOX COUNTY,
June 21th, 1853.

To the Honorable Mr. MASON,
Commissioner of Patents.

SIR: I made application for a patent for a seed-planter last November, and not hearing anything from it since, and not having an agent

there, I thought it would not be improper to write a line enquiring the probable length of time that the Patent-Office is behind in the agriculture department. Also, I wish you would please give me the name of some good agent in case that there was any defect in my specification or drawings. If I knew the name of som' good agent I would write direct to him and employ him to examine my papers to know if they *was* all *write*, as the machine has proven to be of great utility in the west, or I m*inte* say in our prairie country.

Yours, with respect,

GEORGE W. BROWN.

(Indorsed:) Letter. July 21. Geo. Brown. Filed July 2, 1853. D. Breed. Papers ret. June 13, '53. Wait answer a few days, July 2, 1853.

Case was ordered to issue in July; therefore no answer is necessary. Aug. 1, '53.

92 The Comm'r of Patents will please have my patent for a seed-planter, when issued, antedated six months, and much oblige,

Yours, &c.

GEORGE W. BROWN.

WASHINGTON, D. C., *July* 20, 1853.

93 *Exhibit B to the deposition of Lester L. Bond.*

The U. States Patent-Office to all persons to whom the' presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters-patent granted George W. Brown, August 2, 1853; (antidated February 2, 1853.) No. 9893.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this twentieth day of March, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the eighty-ninth.

[SEAL.] D. P. HOLLOWAY.

No. 9893.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Tylerville, Ill., has alleged that he has invented a new and useful improvement in seed-planters, which he states has not been known or used before his application; has
94 made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of four-

teen years from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Brown, in the sc'edule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made
[L. S.] patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this second
95 day of A'gust, in the year of our Lord one thousand eight hundred and fifty-three, and of the Independence of the United States of America the seventy-eighth.

ROBERT McCLELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.

CHARLES MASON,
Commissioner of Patents.

George W. Brown, of Tylerville, Ill., letters-patent, No. 9893, dated August 2, 1853. Antidated Feb. 2, 1853. Re-issued Feb. 16, 1852.

To all whom it may concern:

Be it known that I, George W. Brown, of Tylerville, in the county of Warren and the State of Illinois, have invented new and useful improvements in seed-planters, for planting corn and smaller grains, and have incorporated said improvements in a machine called the "Illinois seed-planter;" and I do hereby declare that the following is a full, clear, exact description of the construction and operation of the same, reference being had to accompanying drawings, making a part of this
96 specification, in which—

Fig. 1 is a view in elevation, from the rear of the machine, when filled for drilling grain;

Fig. 2, side view in elevation, when filled for drilling;

Fig. 3, top or birds-eye view, when filled for drilling seed;

Fig. 4, top or birds-eye view, when filled for planting in checked rows, having the wheels removed;

Fig. 5. side view when filled for planting in checked rows.

Similar letters of reference indicate like parts in each of the several drawings.

To enable others skilled in the art to make & use my invention, I will proceed to describe its construction and operation:

A is the tongue of the machine.

B, cross-bar, which is bolted to the rear end of the tongue, and supports the hopper and seat-board.

C, seat-board, on which the person rides while planting in checked rows.

D, hopper to hold the seed which is to be planted.

E, cutters which are in the shape of sled-runners, so as not to clog, and are sharp so as to cut the weeds and straw. It has also a double flange in the rear, of dove-tail form, so as to part the earth smoothly, and it is capped at the rear so as to form a tube nearly to the heal of the cutter. Through this tube the seed passes to the earth.

97 F, tube just described.

G, the horizontal wheels in the bottom of the hopper.

It has a variety of sized holes, H, to suit different kinds and sizes of

grain, so as to graduate the quantity to be planted as desired. These holes being in pairs, the oscillating motion of the wheels passes one of these holes under a stationary cap, dropping its portion of seed into the tube F, while the mate hole, being out from under the cap, receives a portion of seed, and the cap graduates the amount of seed it carries to the tube in its turn by the oscillating motion of the wheel G.

I, Fig. 6, the stationary cap under which the holes are to operate, as just described.

J, Fig. 5, the slot for drilling small grain. Its operation is like the pairs of holes H and cap I, Fig. 6, but when drilling grain is to be done the pin K, Fig. 6, is screwed into cap I, so that its point will extend through cap I, into the slot, and so prevent the seed from clogging in the slot. But in planting checked rows this screw only extends down to the wheel G.

L, the slide which is screwed over the edge of slot J, and it is to be moved back or forth so as to cover as much of the slot as will admit just the quantity of seed required to be drilled.

98 M, stationary pins, 4 to each wheel, extending up from wheel G for the purpose of distributing the seed and moving it towards the holes & slots.

N, Fig. 5, the connecting-rod, which has pins fitted into the holes O in each wheel, to give them their oscillating motion.

P, the lever, which is hung on a pin to the seat-board C, and by another to the connecting-rod N. This lever is moved to and fro in planting checked rows, by the person who rides on the seat-board C. Each motion deposits two hills of seed. Previous to planting in checked rows, the ground must be marked off one way, thus to enable the operator to deposit the hills, so that the rows will cross each other at right angles.

Q, four short levers, hung by a hinge to each side of the seed-box, and the rear end united by the pieces R R, which are double-vibrating braces, extending down on each side of the planting-wheels S S, and the axles of those wheels S S pass through the lower ends of braces R R and Q Q.

U U, two flat levers, hung by hinges to cross-bar B, and the rear ends of these levers are bolted to cross-bar T, then the braces or pieces R R rest under these flat levers on bolts at *h h*, so that by pressing downward the cross-bar T the levers U U will raise the cutters clear from the ground, the braces and wheels just described being the fulcrums; the weight of cross-bar T, together with the vibrating motion

99 of planting-wheels S S, will press the earth on to the seed as nearly equal on uneven ground as on smooth.

Directly in the rear of the hinge, on levers U U, is a button *f f*, which, when one end is turned between the lever and cross-bar B, will raise the cutters to one depth of cut, and when the other end is in same place, it will raise the cutter to another depth; and when neither end of the button is between the levers and the cross-bar B, the cutters will run another depth, thus enabling me to plant three different depths.

V V, wheels on which the planter is mounted for drilling grain.

W, axle, which turns with wheels V V.

X X, two bars, through which the axles of the wheels pass at *y y*, to sustain the planter.

Z Z, slots in the front end of the bars X X, which lock on to the front end of the cutters E, by elevating the bars X X; when X X are depressed, the locks at Z Z being complete.

The lever-bars *a* are attached to the rear ends of X X, and swing on

a pin in fulcrum-post *b*, the longer ends of the lever-bar *a* interlock at post *c*, which fits both sides of the ends of lever-bars *a*, leaving them free to move perpendicularly, so that when the ends of lever-bars *a* are elevated, the levers raise the planter from the earth; or if partially
100 elevated, it will cause the planter to drill grain more shallow; and pin *d*, Fig. 1, is moved to holes *c*, in order to sustain the planter in the position desired.

Lever *p* has a friction-roller or pin *e* on its side, which plays in a zig-zag groove, on the axle W, for the purpose oscillating the wheels G, when drilling grain.

What I claim as my invention is—

1. The oscillating horizontal wheels or distributors in the bottoms of the hoppers, having slots & holes of various sizes, in combination with the stationary caps and pins for the discharge of different kinds & quantities of seeds, as set forth.

2. I also claim the arrangement of the covering-rollers, mounted as described, and performing the purpose of covering the seed, elevating the cutters in turning around, and also in adjusting them to different depths, as set forth.

GEORGE W. BROWN.

Witnesses:
GEORGE R. WEST.
A. B. STOUGHTON.

101 The U. States Patent-Office to all to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the files of this office, of the file-wrapper, and contents, and drawing, in the matter of the application of Edward P. Farley, filed February 4, 1853, and rejected.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this twenty-seventh day of February, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the eighty-ninth.

[SEAL.] D. P. HOLLOWAY.

102 No. Edward P. Farley, of West Creek, County of Lake, State of Indiana. Corn-planter.

Rec'd, Feb'y 4, 1853.
Petition, " " "
Affidavit, " " "
Specification, " " "
2 drawings, " " "
Model, " " "
Cert. dep.
1. Cash, $30," " "
Examined.
Cash to Hon. S. Colfax.
2. Issue, Febr'y 2nd, 1836.+
4. Patented, 185 . Bl'ks June 8, 1855.
Recorded, vol. , page .

W. P. Elliott, ag't.
April 1, 1854.

S.

Rejected (on app. of Ja's Dundas, Aug. 7, 1851, & pat. D. Rhodes Dec. 10, '50,) June 27, '53.
Rec'v'd papers & 1 dr. April 1, '54.

W. P. E.

Papers to office Jan'y 30, '56.

103 To the Commissioner of Patents:

The petition of Edward P. Farley, of West Creek, in the county of Lake & State of Indiana, respectfully represents that your petitioner has invented a new and useful machine for planting corn and other seeds which he verily believes has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters-patent of the United States may be granted him therefor, vesting in him and his legal representatives the exclusive right to the same upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid thirty dollars into the Treasury and complied with the other provisions of said act.

EDWARD P. FARLEY.

104 *Specification.*

To all whom it may concern:

Be it known that I, Edward P. Farley, of West Creek, of the County of Lake & State of Indiana, have invented a new & improved method of planting corn & other seeds, and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters & references marked thereon.

The nature of my invention consists in the construction & use of a peculiar carriage or machine, with attachments thereto for marking, rowing, dropping, covering, and pressing down the earth upon each row or hill at one and the same time, the labor being all performed by the same power which propels the machine.

To enable others skilled in the art to make & use my invention I will proceed to describe its construction & operation.

In the annexed drawings Fig. 1 is a longitudinal section through the centre of the apparatus; Fig. 2 is a rear view of the under part
105 of the wheels, *b b* being broken off, and the right-hand part of the shaft *q* being taken away; Fig. 3 & Fig. 4 are longitudinal sections through the centers of the grain-boxes *ee*.

Under the grain-boxes *e e* are situated the droppers *f f*. (See Fig. 3 & Fig. 4.) These droppers *f f* are provided with a circular hole, *g*, (see Fig. 3 & 4,) through which the grain has to pass. These droppers are movable in corresponding holes of the frame *hh*, (see Fig. 3 & 4,) and Figs. 3 & 4 represent the droppers in their extreme positions. The motion of the droppers is effected by two cam-wheels, *i i*, (see Fig. 1, 2, 3, & 4) acting on a spring, S, (see Fig. 1, 2, 3, 4) in a manner hereafter to be described. The spring S is attached with the bolt *l* (see Fig. 1 & 2) to the projecting part K (see Fig. 1 & 2) of the frame *h h*, and connects on both ends with the droppers *f f* by means of an opening, *m*, in the spring (see Fig. 2, 3, & 4,) which fits the projecting part *n* of the droppers. (See Fig. 2, 3, & 4.) The pin *o* (see Fig. 2, 3, & 4) causes the dropper *f* to follow the spring S if it moves from its position in Fig. 4 towards its position in Fig. 3.

On the shaft *q*, (see Fig. 1, 2, 3, & 4,) supported by the parts
106 J J of the frame, (see Fig. 1 & 2,) sets firmly two cam-wheels *i i*, and a band-wheel *r*. (See Fig. 1, 2, 3, & 4.) Fig 2 does not repre-

sent the wheel *r* and only one of the cam-wheels *i*, the shaft *q* being broken off in *t* (see Fig. 2) above described.

The spring S presses against the circumference of the cam-wheels *ii*. If the shaft *q*, and consequently the cam-wheels *ii*, are set in motion in the direction of the arrow A, (see Fig. 3,) the ends of the spring S will be forced back once during each turn of the cam-wheel, and so the open part *g* of the droppers *f f* will be alternately drawn under the grain-boxes *ee* & back.

The driving-wheels *b b* (see Fig. 1 & 2) follow immediately behind each of the droppers *f f* and coverers *x x*, and act as rol'ers in pressing the earth firmly upon the seed.

With the axle *a* (see Fig. 1) of the driving-wheels *b b* is firmly connected a band-wheel *d*, (see Fig. 1 & 2,) and the motion of the driving-wheels *b b* is transferred to the band-wheel *r*, and consequently to the shaft *q*, by means of the band B B. (See Fig. 1.)

107 To the frame *h h* are firmly attached the markers W W, (see Fig. 1, 2, 3, & 4,) and to these the coverers *x x*, (see Fig. 1, 2, 3, & 4,) immediately under the droppers *f f*. The upright frame-work *y y* (Fig. 1) connects the frame *h h* firmly with the platform *c*, (Fig. 1 & 2,) which is balanced on the axle *a*. A cord, *z z*, (Fig. 1 & 2,) which is fastened to the spring S in *z z* (Fig. 2) passes under the frame *h h*, through the holes *h h*, (Fig. 2,) the platform *c*, & through the cylinder R, (Fig. 1 & 2.) The cylinder R can be turned on the pivot P (Fig. 1) by means of the lever-arm R, (Fig. 1 & 2.) The pin U (Fig. 1 & 2) has to hold the lever-arm in its position on either side.

By turning the cylinder R on the pivot P a tightening of the cord *z z* is effected, and therefore the spring S will be drawn back in the points *z' z'*, (Fig. 2.) These are the means to regulate the feed or supply of the droppers, and to unship the dropping-apparatus or suspend its action at pleasure. The platform is balanced on the axle *a* in such a manner as to regulate, by the weight of the driver standing on it, the

108 action of the marking and covering apparatus elevating or depressing the same so as to work any desired depth, or stop its action at pleasure while turning, etc.

What I claim as my invention is—

1st. The balance-platform, by means of which the elevation or depression of the planting-apparatus is controlled by the weight of the driver, while the machine is working.

2d. The manner of cutting off or suspending the operation of dropping, by means of a spring & cord attached to a pivot-lever or rol'er fixed to some convenient part of the platform, as substantially set forth in the specifications.

3d. The spring which works the droppers, and the cam-wheels which act upon the spring, as represented in the accompanying drawings.

EDWARD P. FARLEY.

Witness':
CLINTON JACKSON.
M. C. GRITZNER.

109 CITY OF WASHINGTON,
District of Columbia, ss:

On this 4th day of February, A. D. 1853, before me, the subscriber, a justice of the peace, personally appeared the within-named Edward P. Farley, & made solemn oath that he verily believes himself to be the original & first inventor of the mode herein described of planting corn and other seeds; and that he does not know or believe the same

was ever before known or used; and that he is a citizen of the United States.

J. S. SMITH, *J. P.*

WEST CREEK, IND., *June* 30, 1853.

To the Commissioner of Patents:

DEAR SIR: If it is not in violation of the regulations of the Patent-Office, I would respectfully ask for a little information concerning an application which I made, on the 4th day of last February, for a patent upon a machine called Edward P. Farley's improved corn-planter. I was informed by some of the officers that the case would probably be acted upon in the course of 5 or 6 weeks from the time the application was made, and having waited until the present and heard nothing from it, I was fearful that I had done my business wrong, it being my first effort in business of this kind.

With much respect, I remain your ob't servant,

EDWARD P. FARLEY.

(Endorsed:) Rec'd July 8, 1853. Answer not required.

To the Commissioner of Patents:

The petition of Edward P. Farley, of West Creek, in the county of Lake, and State of Indiana, respectfully represents that your petitioner has invented a new and useful improvement in corn-planters, which he really believes has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters-patent of the United States may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid thirty dollars into the Treasury, and complied with other provisions of the said act.

He further prays that William P. Elliott may be recognized as his attorney in presenting this application, altering or withdrawing the same, as the case may require, and to receive the patent when granted.

Signed at West Creek, Lake County, State of Indiana, the twenty-third day of March, in the year of our Lord eighteen hundred and fifty-four.

EDWARD P. FARLEY.

(Endorsed:) Power of attorney to W. R. Elliott. April 1, 1854. A. S. M. G.

To the Commissioner of Patents:

DEAR SIR: I hereby withdraw my application for a patent for an improvement in the corn-planter, now in your office, and request that twenty dollars may be returned to me, agreeably to the provisions of the act of Congress authorizing such withdrawal.

EDWARD P. FARLEY.

WEST CREEK, LAKE CO., INDIANA, *May 24th*, 1855.

P. S.—Please remit the gold, at my risk, and direct to West Creek, Lake Co., Indiana.

(Endorsed:) E. P. Farley. May 24. Filed June 8, 1855. H. McC.

To the Commissioner of Patents:

SIR: I hereby withdraw my application for a patent for a corn-planter now in your office, and request that twenty dollars may be refunded to me, agreeably to an act of Congress in such cases made and provided.

E. P. FARLEY,
By his att'y, SCHUYLER COLFAX.

FEBR'Y 2ND, 1856.

PATENT OFFICE, , 185 .

Please date, sign, and return the above receipt and withdrawal, when twenty dollars will be refunded to you. As the money can be paid only in specie, you are requested to state distinctly whether it shall be remitted in gold by mail, or paid to your order at this office. It can be refunded only in one of these two methods.

Commissioner of Patents.

(End's'd:) Withdrawal filed Feb. 2d, 1856. H. McC.

113 WEST CREEK, LAKE CO., IA.,
Jan. 10, 1856.

Mr. S. COLFAX.

DEAR SIR: Please pardon me for venturing to trespass upon your time, as we are strangers to each other, though your physi'gnomy and voice are familiar to me, as I once went 12 miles (to Crown Point) to enjoy the pleasure of hearing a political speech from you.

My principal object in writing is to ask of you a favor, viz: I have $20, in gold, payable to my order in the Patent-Office. As the money is payable only in specie, I did not like to risk it in a letter. If you, in some of your walks in that direction, will do me the favor to step into the office and draw the gold and send me (by mail) some paper (Eastern funds) in place of the gold, I will forward to you the order immediately; and—

Remain, as ever, truly, your ob't serv't,
E. P. FARLEY, *P. M.*

If you are willing to do the above favor, please return the within envelope.

P. S.—Any public documents which you might be pleased to
114 send to me would be received with thankfulness, and perused with much pleasure.

(J.) E. P. F.

(Endorsed:) Filed Feb'y 2, 1856. H. McC.

Mr. Patton, cor. 8th st., has Mr. Elliott's papers, which must be returned to file before paym't is made.

WASHINGTON, D. C., *June* 30, 1856.

To Comm'r of Patents:

SIR: *We* enclosed specification of E. P. Farley's corn-planter, which was withdrawn from the files of the office by the late W. P. Elliott, is herewith returned.

Very resp'y, yours, &c.,
GEO. PATTEN.

(Endorsed:) Exhibit number two, referred to in testimony of Farley.
J. C. KABY, *N. P.*

115 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the files of this office, of the file-wrapper and contents, and drawing in the matter of the application of E. P. Farley, filed Feb'y 4th, 1853, and rejected.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this nineteenth day of October, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the ninetieth.

[SEAL.] T. C. THEAKER.

To the Commissioner of Patents:

The petition of Edward P. Farley, of West Creek, in the county of Lake & State of Indiana, respectfully represents, that your petitioner has invented a new and useful machine for planting corn and other seed, which, he verily believes, has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters-patent of the United States may be granted him therefor, vesting
116 in him and his legal representatives the exclusive right to the same, upon the terms & conditions expressed in the act of Congress in that case made *made* & provided, he having paid thirty dollars into the Treasury, and complied with the other provisions of said act.

EDWARD P. FARLEY.

Specification.

To all whom it may concern:

Be it known that I, Edward P. Farley, of West Creek, of the county of Lake & State of Indiana, have invented a new & improved method of planting corn & other seeds. And I do hereby declare that the following is a full & exact description thereof, reference being had to the accompanying drawings, and to the letters & references marked thereon.

The nature of my invention consists in the construction and use of a peculiar carriage or machine, with attachments thereto, for marking, rowing, dropping, covering, and pressing down the earth upon each row or hill, at one and the same time, the labor being all performed by the same power which propelles the machine.

117 To enable others skilled in the art to make & use my invention, I will proceed to describe its construction & operation:

In the annexed drawings, Fig. 1 is a longitudinal section through the centre of the apparatus; Fig. 2 is a rear view, the under part of the wheels *b b* being broken, and the right-hand part of the shaft *q* being taken away; Fig. 3 & Fig. 4 are longitudinal sections through the centres of the grain-boxes *e e*.

Under the grain-boxes *e e* are situated the droppers *f f*. (See Fig. 3 and Fig. 4.) These droppers *f f* are provided with a circular hole, *g*, (see Fig. 3 & 4,) through which the grain has to pass. These droppers are movable, in corresponding holes of the frame *h h*. (See Fig. 3 & 4.) And Fig's 3 & 4 represent the droppers in their extreme positions. The motion of the droppers is effected by two cam-wheels *i i* (see Fig. 1, 2, 3, & 4) acting on a spring, S, (see Fig's 1, 2, 3, 4,) in a manner hereafter to be described. The spring S is attached with the bolt *l* (see Fig. 1 & 2) to the projecting part K (see Fig. 1 & 2) of the frame *h h* and connects, on both ends, with the droppers *f f*, by means of an

opening, *m*, in the spring, (see Fig. 2, 3, & 4) which fits the projecting part *n* of the droppers. (See Fig. 2, 3, & 4.) The pin *o* (see
118 Fig. 2, 3, & 4) causes the dropper *f* to follow the spring S, if it moves from its position in Fig. 4 towards its position in Fig. 3.

On the shaft *q* (see Fig. 1, 2, 3, & 4) supported by the parts J J of the frame, (see Fig. 1 & 2,) sit firmly two cam-wheels *i i* and a band-wheel, *r*. (See Fig. 1, 2, 3, & 4.) Fig. 2 does not represent the wheel *r*, and shows only one of the cam-wheels *i*, the shaft *q* being broken off in *t* (see Fig. 2,) in order to show the parts *m* and *n* (see Fig. 2) above described.

The spring S presses against the circumference of the cam-wheels *i i*. If the shaft *q*, and consequently the cam-wheels *i i*, are set in motion in the direction of the arrow A, (see Fig. 3,) the ends of the spring S will be forced back once during each turn of the cam-wheel; and so the open part *g* of the droppers *f f* will be alternately drawn under the grain-boxes *e e* and back.

The driving-wheels *b b* (see Fig. 1 & 2) follow immediately behind each of the droppers *f f* and covers *x x*, and act as rollers in pressing the earth firmly upon the seed.

With the axle *a* (see Fig. 1) of the driving-wheels *b b* is firmly connected a band-wheel, *d*, (see Fig. 1 & 2,) and the motion of the driving-
119 wheels *b b* is transferred to the band-wheel *r*, and consequently to the shaft *q*, by means of the band B B. (See Fig. 1.)

To the frame *h h* are firmly attached the markers W W, (see Fig. 1, 2, 3, 4,) and to these the covers *x x*. (See Fig. 1, 2, 3, 4.) Immediately under the droppers *f f* the upright frame-work *y y* (Fig. 1,) connects the frame *h h* firmly with the platform *c*, (Fig. 1 & 2,) which is balanced on the axle *a*. A cord, *z z*, (Fig. 1 & 2,) which is fastened to the spring S in *z' z'* (Fig. 2) passes under the frame *h h* through the holes *h' h'* (Fig. 2) of the platform *c*, & through the cylinder R, (Fig. 1 & 2.) The cylinder R can be turned on the pivot P (Fig. 1,) by means of the lever-arm R', (Fig. 1 & 2.) The pin U, (Fig. 1 & 2) has to hold the lever-arm in its position on either side.

By turning the cylinder R on the pivot P, a tightening of the cord *z z* is effected, and therefore the spring S will be drawn back in the points *z' z'* (Fig. 2.) These are the means to regulate the feed or supply of the droppers, and to unship the dropping-apparatus, or suspend its action at pleasure. The platform is balanced on the axle *a* in such a manner as to regulate, by the weight of the driver standing on it, the
120 action of the marking and covering apparatus, elevating or depressing the same so as to work any desired depth, or stop its action at pleasure, while turning, etc.

What I claim as my invention is—

1st. The balance-platform, by means of which the elevation or depression of the planting-apparatus is controlled by the weight of the driver, while the machine is working.

2d. The manner of cutting off or suspending the operation of dropping by means of a spring and cord attached to a pivot-lever or rol'er fixed to some convenient part of the platform, as substantially set forth in the specifications.

3d. The spring which works the droppers, and the cam-wheels which act upon the spring, as represented in the accompanying drawings.

EDWARD P. FARLEY.

Witnesses:
CLINTON JACKSON.
M. C. GRITZNER.

CITY OF WASHINGTON,
District of Columbia, ss:

On this 4th day of February, A. D. 1853, before me, the subscriber, a justice of the peace, personally appeared the within-named Edward P. Farley, & made solemn oath that he verily believes himself to be
121 the original & first intentor of the mode herein described of planting corn and other seeds, and that he does not known or believe the same was ever before known or used, and that he is a citizen of the United States.

J. L. SMITH, *J. P.*

WEST CREEK, IND., *June 30th*, 1853.

To the Commissioner of Patents.

DEAR SIR: If it is not in violation of the regulations of the Patent-Office, I would respectfully ask for a little information concerning an application which I made, on the 4th day of last February, for a patent upon a machine called "Edward P. Farley's improved corn-planter." I was informed by some of the officers that the case would probably be acted upon in the course of 5 or 6 weeks from the time the application was made; and having waited until the present and heard nothing from it, I was fearful that I had done my business wrong, it being my first effort in business of this kind.

With much respect, I remain your ob'd't servant,

EDWARD P. FARLEY.

(Endorsed:) Rec'd July 8, 1853. Answer not required.

122 To the Commissioner of Patents:

The petition of Edward P. Farley, of West Creek, in the county of Lake, and State of Indiana, respectfully represents, that your petitioner has invented a new and useful improvement in corn-planters, which, he verily believes, has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters-patent of the United States may be granted to him therefore, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid thirty dollars into the Treasury, and complied with other provisions of the said act.

He further prays that William P. Elliot may be recognized as his attorney in presenting this application, altering or withdrawing the same, as the case may require, and to receive the patent when granted.

Signed at West Creek, Lake County, State of Indiana, the twenty-third day of March, in the year of our Lord eighteen hundred and fifty-four.

EDWARD P. FARLEY.

(Endorsed:) Power of attorney to W. P. Elliot. April 1, 1854.

123 To the Commissioner of Patents.

DEAR SIR: I hereby withdraw my application for a patent for an improvement in the corn-planter, now in your office, and request that twenty dollars may be returned to me, agreeably to the provisions of the act of Congress authorizing such withdrawal.

EDWARD P. FARLEY.

WEST CREEK, LAKE CO., INDIANA, *May 24th*, 1855.

(P. S.)—Please remit the gold, (at my risk,) and direct to West Creek, Lake Co., Indiana.

(Endorsed:) E. P. Farley. May 24th. Filed June 8, 1855.

WEST CREEK, LAKE CO., IA., *Jan. 10th*, 1856.

Mr. S. COLFAX.

DEAR SIR: Please pardon me for venturing to trespass upon your time, as we are strangers to each other, though your physiognomy and voice, *as* familiar to me, as I once went 12 miles (to Crown Point) to enjoy the pleasure of hearing a political speech from you.

My princip*le* object in writing is to ask of you a favor, viz: I have
124 $20 in gold, payable to my order, in the Patent-Office. As the money is payable only in specie, I did not like to risk it in a letter. If you (in some of your walks in that direction) will do me the favor to step into the office and draw the gold, and s*i*nd me (by mail) some paper (Eastern funds) in place of the gold, I will forward to you the order immediately, and—

Remain, as ever, truly your ob't servant,

E. P. FARLEY, *P. M.*

If you are willing to do the above favor, please return the within envelope.

P. S.—Any public documents which you might be pleased to send to me would be received with thankfulness, and perused with much pleasure.

(Endorsed:) Filed Feb'y 2, 1856.

To the Commissioner of Patents.

SIR: I hereby withdraw my application for a patent for a corn-planter, now in your office, and request that twenty dollars may be refunded to me agreeably to an act of Congress in such cases made and provided.

Feb'y 2nd, 1856.

E. P. FARLEY,
By his att'y, SCHUYLER COLFAX.

(Endorsed:) Withd'l filed Feb'y 2nd, 1856.

125 WASHINGTON, D. C., *June 30th*, 1856.

To Comm'r of Patents.

SIR: The enclosed specification of E. P. Farley's corn-planters, which was withdrawn from the files of the office by the late W. P. Elliot, is herewith returned.

Very respectfully, yours, &c.,

GEO. PATTEN.

No. . Edward P. Farley, of West Creek, county of Lake, State of Indiana.

Corn-planter.

Rec'd	Feb'y	4,	1853.
Petition	"	"	"
Affidavit	"	"	"
Specification	"	"	"
2 drawings	"	"	"
Model	"	"	"
Cert. dep.	"	"	"
Cash $30	"	"	"

Examined. Cash to Hon. S. Colfax.
2. Issue Feb'y 2nd, 1856.
4. Patented 185 . Bl'ks, June 8, 1855.
Recorded vol. page
W. P. Elliot, ag't.
S. April 1, 1854.

126 Rejected (on app. of Jas. Dundas, Aug. 7, 1851, & pat. D. Rhodes, Dec. 19, '50,) June 27, '52.
Rec'd papers & 1 dr. April 1, '54.

W. P. E.

Papers to office Jan'y 30, '56.

127 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the files of this office of the specification and drawing in the matter of the application of Edward P. Farley, filed Feb'y 4, 1853, and withdrawn Feb'y 2d, 1856. Corn-planter.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this twenty-fifth day of January, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the eighty-ninth.

[SEAL.] D. P. HOLLOWAY.

To all whom it may concern:

Be it known that I, Edward P. Farley, of West Creek, of the county of Lake, & State of Indiana, have invented a new and improved method of planting corn & other seeds; and I do hereby declare that the following is a full & exact description thereof, reference being had to the accompanying drawings and to the letters and references marked thereon.

128 The nature of my invention consists in the construction & use of a peculiar carriage or machine with attachments thereto for marking, rowing, dropping, covering, and pressing down the earth, upon each row or hill at one and the same time, the labor being all performed by the same power which propels the machine.

To enable others skilled in the art, to make & use my invention I will proceed to describe its construction & operation:

In the annexed drawings, Fig. 1 is a longitudinal section through the center of the apparatus; Fig. 2 is a rear view, the under part of the wheels *b b* being broken off, and the right hand part of the shaft *g* being taken away; Fig. 3 & Fig. 4 are longitudinal sections through the centres of the grain-boxes *e e*.

Under the grain-boxes *e e* are situated the droppers *f f*. (See Fig. 3 and Fig. 4.) These droppers *f f* are provided with a circular hole *g* (see Fig. 3 & 4) through which the grain has to pass. These droppers are movable in corresponding holes of the frame *h h*, (see Fig. 3 & 4) and Fig's 3 & 4 represent the droppers in their extreme position. The motion of the droppers is affected by two cam-wheels *i i* (see Fig. 1, 2, 3, & 4)

129 acting on a spring S, (see Fig. 1, 2, 3, 4,) in a manner hereafter to be described. The spring S is attached with the bolt *l* (see Fig. 1 & 2) to the projecting part *k* (see Fig. 1 & 2) of the frame *h h*, and connects, on both ends, with the droppers *f f*, by means of an opening in the

spring (see Fig. 2, 3, & 4) which fits the projecting part *n* of the droppers. (See Fig. 2, 3, & 4.) The pin *o* (see Fig. 2, 3, & 4) causes the dropper *f* to follow the spring S, if it moves from its position in Fig 4 towards its position in Fig. 3.

On the shaft *q*, (see Fig. 1, 2, 3, & 4) supported by the parts J J of the frame, (see Fig. 1 & 2,) sit firmly to cam-wheels *i i* and a band-wheel, *r*. (See Fig. 1, 2, 3, & 4.) Fig. 2 does not represent the wheel *r* and shows only one of the cam-wheels *i*, the shaft *q* being broken off in *t*, (see Fig. 2,) in order to show the parts *m* and *n* (see Fig. 2) above-described.

The spring S presses against the circumference of the cam-wheels *i i*. If the shaft *q*, and consequently the cam-wheels *i i*, are set in motion in the direction of the arrow A, (see Fig. 3,) the ends of the spring S will be forced back once during each turn of the cam-wheel, and so the open part *g* of the droppers *f f* will be alternately drawn under the grain-boxes *e e* and back.

130 The driving-wheels *b b* (see Fig. 1 & 2) follow immediately behind each of the droppers *f f* and covers *x x*, and act as rollers in pressing the earth firmly upon the seed.

With the axle *a* (see Fig. 1) of the driving-wheels *b b* is firmly connected a band-wheel, *d*, (see Fig. 1 & 2,) and the motion of the driving-wheels *b b* is transferred to the band-wheel *r*, and consequently to the shaft *q*, by means of the band B B. (See Fig. 1.)

To the frame *h h* are firmly attached the markers W W, (see Fig 1, 2, 3, & 4,) and to these the covers *x x*, (see Fig. 1, 2, 3, 4,) immediately under the droppers *f f*. The upright frame-work *y y* (Fig. 1,) connects the frame *h h* firmly with the platform *c*, (Fig. 1 & 2,) which is balanced on the axle *a*. A cord *z z*, (Fig. 1 & 2,) which is fastened to the spring S[1] in *z' z'* (Fig. 2) passes under the frame *h h* through the holes *h' h'*, (Fig. 2,) of the platform *c* & through the cylinder R, (Fig. 1 & 2.)

The cylinder R can be turned on the pivot P, (Fig. 1,) by means of the lever-arm R', (Fig. 1 & 2,) the pin U, (Fig. 1 & 2) has to hold the lever-arm in its position on either side by turning the cylinder R, on the
131 pivot P; a tightening of the cord *z z* is effected, & therefore the spring S will be drawn back in the points *z' z'*, (Fig. 1).

These are the means to regulate the feed or supply of the droppers and to unship the dropping apparatus or suspend its action at pleasure. The platform is balanced on the axle *a* in such a manner as to regulate, by the weight of the driver standing on it, the action of the marking and covering apparatus, elevating or depressing the same so as to work any desired depth, or stop its action at pleasure, while turning, etc.

What I claim as my invention is—

1st. The balance-platform by means of which the elevation or depression of the planting-apparatus is controlled by the weight of the driver, while the machine is working.

2d. The manner of cutting off or suspending the operation of dropping by means of a spring & cord attached to a pivot-lever or roller fixed to some convenient part of the platform, as substantially set forth in the specifications.

3d. The spring which works the droppers, and the cam-wheels
132 which act upon the spring, as represented in the accompanying drawings.

EDWARD P. FARLEY.

Witnesses:
CLINTON JACKSON.
M. C. GRITZNER.

(Endorsed:) Exhibit number one, referred to in cross-testimony Edward P. Farley on behalf complainant.

J. C. NEELEY, *N. P.*

133 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed are true copys, from the records of this office, of the petition, oath, specification, and drawing, of the withdrawn application of Jarvis Case, filed Dec. 9th 1853.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this twelfth day of April, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States the eighty-fifth.

[SEAL.]

D. P. HOLLOWAY,
Commissioner.

134 *Petition.*

To the Commissioner of Patents:

The petition of Jarvis Chase, of Selma, in the county of Clark, and State of Ohio, respectfully represents:

That your petitioner has invented new and useful improvements in seed-planters, which he verily believes has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters-patent of the United States may be granted to him therefor, vesting in him and his legal representations the exclusive right to the same, upon the terms and conditions expressed in the act of Congress, in that case made and provided; he having paid thirty dollars into the Treasury and otherwise complied with the requirements of said act. And he hereby authorizes O. D. Munn and S. H. Wales, of the firm of Munn & Co., or their 'credited agents, to act as his attorneys in presenting the application and making all such alterations and amendments as may be required.

JARVIS CHASE.

135 COUNTY OF CLARK, *State of Ohio, ss:*

On this third day of December, 1853, before the subscriber, a justice of the peace in and for said county, personally appeared the within-named Jarvis Chase, and made solemn oath that he verily believes himself to be the original and first inventor of the within-described improvement in seed-planters, and that he does not know or believe that the same was ever before known or used; and that he is a citizen of the United States.

A. D. COOMBS, *J. P.*

The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, Jarvis Case, of Selma, in the county of Clarke, and State of Ohio, have invented certain new and useful improvements in seed-planters, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to
136 the annexed drawings, making a part of this specification, in which—

Fig. 1 is a longitudinal vertical section of my improved seed-planter, the plane of section being through the centre;

Fig. 2 is a plan or top view of do.

Similar letters of reference indicate corresponding parts in the two figures.

The nature of my invention consists—

1st. In the employment or use of two slides connected together and operating simultaneously. One slide is placed at the top and the other at the bottom of the conveying-spout.

2d. My invention consists in the peculiar means employed for operating the slides, which will be fully shown and described hereafter.

By the above arrangement as will be presently shown, the seed may be dropped directly into the hill or furrow without being affected by the motion of the machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation:

A represents a beam to which is attached a share B and a roller C; the roller being a short distance behind the share.

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D is a rectangular hopper above the beam A, said hopper being supported by standards (*a*.) (See Fig. 1.)

E is a conveyor-spout, passing obliquely downwards from the hopper, the lower end of the spout being a short distance from the ground and directly back of the share B, as shown in Fig. 1.

At the lower end of the spout E and at its side, there is an opening, (*b*,) over which a slide, (*c*,) works. (See Fig. 1.)

At the upper end of the spout there is a horizontal slide, (*d*,) which works over the upper end of the spout, said slide (*d*) has a circular opening, (*e*,) through it. The slide (*d*) is underneath the bottom of the hopper D, and a square opening, (*f*,) is made through the bottom of the hopper, directly over the slide. (See Figs. 1 and 2.) A small cut-off, (*f*,) made of sheet metal is placed over the slide. This is shown clearly in Fig. 2. The outer end of the slide (*d*) passes beyond the front of the hopper D, and is connected by a cord or chain, (*g*,) to the upper end of the slide (*c*,) as shown in Fig. 1. The inner end of the slide (*d*) is connected by a rod, (*g'*,) to a spring, (*h*,) the lower part of which is secured to the beam A.

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F is a friction-roller attached to the end of an arm, G, which arm is hung on a transverse shaft, H, which works between the handles or arms I I of the machine.

J is a trigger secured by a pivot, (*i*,) to one of the handles or arms. The inner end of this trigger bears against a pin, (*j*,) on the shaft H.

OPERATION.—As the machine is drawn along, the seed is dropped in required spots by depressing the outer ends of the trigger J with the finger. When this is done the inner end of the trigger throws up the pin (*j*) and arm G, and the friction roller F throws the spring (*h*) towards the hopper, and the grain or seed in the aperture (*e*) in the slide (*d*) is brought directly over the conveyor-spout E and falls into it. The slide (*d*) is immediately forced back to its original position by the spring (*h*) when the trigger is relieved from the finger. The cut-off (f^1) prevents the grain or seed in the hopper from falling into the aperture (*e*) when said aperture is over the conveyor-spout E.

139

When the slide (*d*) is moved forward the slide (*c*) is raised, as the two slides are connected by the cord or chain (*g*), but if the trigger J is snapped or operated quickly, the slide (*c*) will close over the aperture (*b*) before the grain or seed can fall from the aperture (*e*) to the bottom

of the spout (E,) hence the grain or seed that passes out of the aperture (*b*) is that which fell from the aperture (*e*) at the proceeding motion of the slide (*d*.) Thus it will be seen that every time the trigger J is operated, the necessary amount of grain or seed to be planted in a certain spot passes out of the aperture (*b*) at the bottom of the spout, while the grain or seed to be planted when the trigger is again operated upon remains at the bottom of the spout, the spout (*e*) closing the aperture (*b*) before the grain or seed above mentioned reaches the bottom of the spout.

By the above arrangement the seed or grain is dropped in the desired spot as soon as the trigger is operated, as it has but a short distance to fall, and is not affected by the motion of the machine. Corn, may be planted in hills, at equal distances apart, the ground being previously furrowed one way only.

It is necessary that the slides (*d*) and (*e*) should be quickly operated, and the arrangement of the spring (*h*,) arm G, and trigger J herein mentioned answers a good purpose.

What I claim as new and desire to secure by letters-patent, is—

1st. The employment or use of the two slides (*d*) (*e*,) connected together by the cord or chain (*g*), and operating simultaneously, one slide (*d*) being at the upper part of the conveyor or spout E, and the other slide (*c*) at the bottom of said spout, for the purpose of allowing the seed or grain to be dropped in desired spots, as herein shown and described.

2nd. I claim operating the slides (*d*) and (*c*) by means of the spring (*h*), arm G, with roller F attached, and trigger J, the above parts being constructed and arranged as herein set forth.

JARVIS CASE.

Witnesses:
A. D. COOMBS,
W'M BALDWIN.

(Indorsed:) Rec'd & filed Dec. 9, 1863. S. T. Shugert.

WASHINGTON, D. C., *June* 21, 1854.

To the Commissioner of Patents.

Amendments filed 21st June, '54. F. TYPEN.

SIR: I hereby amend my claims to letters-patent for improvements in seed-planters by substituting the following in place of my original claims.

What I claim as my invention and desire to secure by letters patent, is—

The slide *d* and appature *e*, arranged and operated as described, in combination with the diagonal cut-off plate *f'*, under which said slide *d* and aperture passess for the purpose of preventing too great a quantity of grain from falling into spout E at one time, and also for the purpose of preventing the grain from being mashed or injured while said plate and aperture is being forced under the diagonal plate *f'*.

2d. I also claim the aperture (*b*) and slide (*c*) in combination with slide (*d*) and diagonal plate *f'* for the purpose of carrying the grain near the surface of the ground and then letting it drop in any required place, the whole being arrang' and operated in the manner and for the purpose set forth.

JARVIS CASE.
Per WILLSON & CO.

143 The U. States Patent-Office to all to whom the' presents shall come, greeting:

This is to certify that the annexed is a true copy, from the files and records of this office, of the specification, correspondence, and drawing in the matter of the application of Charles Finn for letters-patent for "seed-planter," rejected and withdrawn May 17, 1854.

The said copies show the erasures, interlineations, and marginal notes as they appear in the original.

In testimony whereof I, S. T. Shugert, Act'g Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this twenty-first day of March, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States the eighty-fifth.

[SEAL.] S. T. SHUGERT.

144 To all to whom these presents shall come:

Be it known that I, Charles Finn, of Laport, in the county of Laport, in the State of Indiana, have invented certain new and useful improvements in seed-planters, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known, and of the usual manner of making, modifying, and using the same.

The nature of my invention consists in the mode of elevating or depressing the ploughs, and in the compound slide for seeding. The construction is as follows: There is a suitable frame, (*a*,) having a pole, (*b*,) affixed thereto. Projecting downward from this frame are the wooden standards to which the teeth (*c*) are attached and properly braced, and upon it are the seed-hoppers (*d*). On the rear side of the standards (*e*) of the seeding-teeth are tubes formed, the rear sides (*o*) of which are movable, being jointed at or near the centre of their length.

145 The lower ends of these movable s'ides are turned inward, so that they can be made to stop up the tube. There is an arm, (*i*,) connected with the movable side that extends up and is jointed to a horizontal lever, (*k*,) the fulcrum of which is affixed to the frame; a slide-piece, (*l*,) is also attached to the same lever, and works with it, so that when the slide piece draws back and drops the seed into the tube, the tube shall be closed to retain it till the return of the slide, at which motion the tube is opened and the seed dropped out. This apparatus can be worked by any of the well-known devices, (such as a cam or gearing on the wheel, or by hand.) Behind each of the seeding-teeth there is a plough, (*m*,) and coverer, (*n*.) On each side of the frame there is a perpendicular piece, (*p*,) with grooved ways therein, having a sliding block, (*q*,) connecting therewith so as to slide up and down. Upon this block there is a journal projecting out horizontally, upon which the wheel is put and turns. There is a lever catch, (*r*,) attached to the frame, which holds the block (*q*) at its lowest position in the grooves, at which point the frame is raised enough to clear the teeth from the ground. When it is let down by removing the lever catch (*q*) the

146 teeth can only enter to a certain distance, but should they be raised up by any obstruction they do not raise the wheels with them but only the frame, the slot above named allowing it to rise independent of the wheels; nor are they suddenly depressed by the wheels entering a hole or depression in the ground, for the same reason.

Having thus fully described my invention, what I claim therein as new and for which I desire to secure letters-patent, is the combination of slide in the bottom of the seed-hoppers, and the vibrating back to

the seeding-tube, as described, so that the seed shall be delivered through the tooth and stopped by a valve, as described, within the tooth that opens the ground, by which I ensure perfect delivery without chance of obstruction from the earth falling in behind the tooth.

CHA'S FINN.

Witnesses:
JAMES MOORE.
EDWARD VAIL.

147 PATENT-OFFICE, *Sept.* 4, 1852.

SIR: Your papers in application for letters-patent for a seed-planter are herewith returned for additional explanations of the parts noted. It is easy to see by the model in the office how the machine is constructed and may be used. But it is also requisite to have the devices claimed made so clear that an ordinary workman accustomed to such work, can, by the aid of the specification & drawing construct the apparatus for use. This might possibly be done from your drawing, but will be better done if you will make the specification clear in all its parts.

Resp'y yours, &c.,

R. C. WEIGHTMAN,
Act'g Comm'r.

C. FINN,
J. J. GREENOUGH,
Washington, D. C.

PATENT-OFFICE, 22*d October*, 1852.

SIR: Your application for a patent for a seed-planter has been
148 examined, and the claim to the combination of the slide-valve in the hopper-bottom and the vibrating back in the seed-tube is refused, on the reference of A. B. Earle's so-regarded equivalent device of seeding-cups, and vibrating front of the seeding-tube, in his seed-planter, patented in October, 1848. The 2d claim for the arrangement of sliding the wheels up and down in ways is refused, on the ground that the device is well known to inventors.

(See Samuel Ide's cultivator, rejected in 1849.)

Resp'y yours, &c.,

THO'S EWBANK, *Com'r.*

CHARLES FINN,
PAGE & CO., *Present.*

WASHINGTON, 22 *Oct.*, '52.

COMMISSIONER OF PATENTS.

SIR: I herewith return the papers of C. Finn with the second claim stricken out. The first claim is modified, and we hope you will now find it restricted to the actual improvement of Mr. Finn by the explanatory remarks.

Respectfully, &c.,

J. J. GREENOUGH.

149 To all to whom these presents shall come:

Be it known that I, Charles Finn, of Laport, in the county of Laport and State of Indiana, have invented certain new and useful improvements in seed-planters, and that the following is a full, clear, and exact description of the principle or character which distinguishes them

from all other things before known, and of the usual manner of making, modifying, and using the same.

The nature of my invention consists in the mode of elevating or depressing the ploughs, and in the compound slide for seeding. The construction is as follows: There is a suitable frame, (*a*,) having a pole, (*b*,) affixed thereto. Projecting downward from this frame are the wooden standards to which the teeth (*c*) are attached and properly braced, and upon it are the seed-hoppers (*d*.) On the rear side of the standards (*e*) of the seeding-teeth are tubes formed, the rear sides (*o*) of which are movable, being jointed at or near the centre of their length. The lower ends of these movable sides are turned inwards, so that they can
150 be made to stop up the tube. There is an arm, (*i*,) connected with the movable side, that extends up and is jointed to a horizontal lever, (*k*,) the fulcrum of which is affixed to the frame. A slide-piece, (*l*,) is also attached to the same lever, and works with it, so that when the slide-piece draws back and drops the seed into the tube, the tube shall be closed to retain it till the return of the slide, at which motion the tube is opened and the seed dropped out. This apparatus can be worked by any of the well-known devices, such as a cam or gearing on the wheel, or by hand. Behind each of the seeding-teeth there is a plough (*m*,) and coverer (*n*.) On each side of the frame there is a perpendicular piece, (*p*,) with grooved ways therein, having a sliding-block, (*q*,) connecting therewith, so as to slide up and down. Upon this block there is a journal projecting out horizontally, upon which the wheel is put and turns. There is a lever-catch, (*r*,) attached to the frame which holds the block (*q*) at its lowest position in the grooves, at which point the frame is raised enough to clear the teeth from the ground.

When it is let down by removing the lever-catch (*r*) the teeth
151 can only enter to a certain distance; but should they be raised up by an obstruction, they do not raise the wheel with them, but only the frame, the slot above named allowing it to rise independent of the wheels; nor are they suddenly depressed by the wheels entering a hole or depression in the ground, for the same reason.

Having thus fully described my invention, what I claim therein as new, and for which I desire to secure letters-patent, is the combination of slide in the bottom of the seed-hopper, and the vibrating back to the seeding-tube, as described, so that the seed shall be delivered through the tooth and stopped by a valve, as described, within the tooth that opens the ground, by which I ensure perfect delivery without chance of obstruction from the earth falling in behind the tooth.

CHA'S FINN.

Witnesses:
JAMES MOORE.
EDWARD VAIL.

152 PATENT-OFFICE, *Oct'r 23d*, 1852.

SIR: Your letter of 22d inst., returning the specification in application for letters-patent for a seed-planter, rejected on 22d, is duly rec'd. If you wish a re-examination, it is required that the official letter of rejection be first answered.

Resp'y yours, &c.,

THO'S EWBANK, *Com'r*.

CHARLES FINN,
J. J. GREENOUGH,
Wash'ton, D. C.

To the Commissioner of Patents.

SIR: Pay to the order of J. J. Greenough, twenty dollars, being the amount due me on withdrawing my application for a patent for improvements in seed-drills.

Erie, Pa., February 22, 1854.

CHARLES FINN.

153 To the Commissioner of Patents.

SIR: I hereby withdraw my application for a patent for improvement in the seed-drill, now in your office, and request the twenty dollars may be returned to me, agreeably to the provisions of the act of Congress authorizing such withdrawal.

Erie, Pa., February 22, 1854.

CHARLES FINN.

Will the Commissioner please forward the within amount to me by mail. J. J. GREENOUGH.

(Endorsed:) Withdrawal. Filed May 17, '54. H. McC.

No. . Cha's Finn, of Laporte County, State of Indiana.

154 Seed-planter.

Rec'd April 23, 1852.
Petition, " " "
Affidavit, " " "
Specification, " " "
2 drawings, " " "
Model, " " "
Cert. dep.
1. Cash, $30, " " "
Examined. Cash by mail to J. J. Greenough, May 17, 1854. +
2. Issue,
4. Patented 185 .
Recorded vol. , page .

J. J. GREENOUGH,
S. Wash'n, D. C.

Ret'd sp. & dr. for better descript'n, Sept. 14, '52.
Reported to exam'r, Sept. 15, '52.
R'j'd 22d Oct., '52.
Spec. to ag't, Oct. 22, '52.
Postponed re-examination for answ'r to letter of 22d, Oct. 23, '52.

155 No. 12231.

The United States of America to all to whom these letters-patent shall come:

Whereas Jarvis Case, of Springfield, Ohio, has alleged that he has invented a new and useful improvement in seed-planters, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive

property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Jarvis Case, his heirs, administrators, or assigns, for the term of fourteen years from the sixteenth day of January, one thousand eight hundred
156 and fifty-five, the full and exclusive right and liberty of making, constructing, using, & vending to others to be used the said improvement, a description whereof is given in the words of the said Case, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent-Office has been hereunto affixed.

Given under my hand, at the city of Washington, this sixteenth day of January, in the year of our Lord one thousand eight hundred and fifty-five, and of the Independence of the United States of America the seventy-ninth.

ROBERT McCLELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[L. S.]

C. MASON,
Commissioner of Patents.

157 The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it know' that I, Jarvis Case, of Springfield, in the county of Clark, and State of Ohio, have invented an improvement in corn-planters, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Fig. 1 is a longitudinal vertical section, the plane of section being through the centre;

Fig. 2 is a plan or top view of do. Similar letters of reference indicate corresponding parts in the two figures.

The nature of my invention consists in constructing a new and useful improvement in corn-planters, as follows:

First. The manner in which I construct and arrange the rocker-arms (*h h*) & H, weighted lever, thumb-lever, and the elastic wire for a vibratory motion, for the purpose of dropping an accurate number of grains every time alike.

158 Second. My improvement consists in the construction and arrangement of the angular cut-off plate and brush, acting in combination with each other, for the purpose hereinafter set forth.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the beam of the machine; B is the hopper, which is supported above the beam A by uprights *a a*.

C is the ground wheel, which is attached to beam A, as shown in dotted lines in Fig 1. D is the conveyor-spout. E is the plow, which is formed with a hollow or open space, (L,) in the back part, the object of said hollow is to receive the lower end of the conveyor-spout. Said plow is also provided with wings or projections (*e e*,) there being but one shown in Fig. 1, which extend back a sufficient distance to prevent the soil from filling the furrow behind the plow before the grain has dropped to the bottom of the furrow. F F are the handles. G is

the rocker, which has its bearing in the handles F F. Said rocker
159 is provided with a weighted lever, (*g*;) it is also provided with arms (*h h*) and H. X is the thumb-lever, which has its fulcrum at (*y*,) and is operated by the thumb while planting in check-rows. I is the reciprocating slide, which is provided with an aperture, (*i*,) and is connected to arm H by means of connecting-rod J, and slides in suitable ways K, (Fig. 1.) L is a lever which has its fulcrum at (*l*,) and is connected to slide (*m*) by means of connecting rod (*o*.)

(O) is a lever which has its fulcrum at P, one end of which is connected to arm (*h*) by means of rod (*r*.) the other end passes down close by the side of the wheel (*c*,) as seen in dotted lines, (Fig. 2.) S is an elastic wire which passes under arms (*h h*,) and has its ends firmly fixed in handles F F. (*t*) is the cut-off plate which, made of leather or its equivalent, it being impossible to construct a cut-off plate in the form shown in Fig. 2 of wood or metal, that will produce the desired effect, from the fact that the grains of corn often project a little above the top of the slide I at the time that the aperture I is passing under the
160 cut-off plate (*t*,) therefore, if said cut-off plates were made of any inelastic substance, the grains of corn would either be crushed or the motion of the slide would be arrested.

The use of leather or its equivalent for the construction of the cut-off plates entirely obviates this difficulty, by its elastic qualities, which allows it to raise and let the corn pass under it without being crushed or injured.

(U) is a brush-stock, which is secured at each end by means of screws, as seen in Fig. 2. Said brush-stock is hollowed out on the under side, as seen in Fig. 1. (V) is the brush, which is composed of bristles or any suitable material, and passes through the brush-stock and projects down, or nearly down, to the cut-off plate, and directly over the angle in said plate, as seen in the drawing. The object of said brush is to aid the cut-off plate by brushing all superfluous grains from aperture (*i*,) before said corn comes in contact with the cut-off plate. It will also be seen that the grains of corn lying partially within and partially
161 above the aperture, or being carried forward in contact with the brush, are pressed snugly into the aperture, or at least as many of them as said aperture will contain, thus causing an equal number of grains (or nearly so) to be discharged at each operation. (W) is a bar of iron passing across the under side of the beam, and is secured firmly to it. The ends of the said bar project out on either side of the beam, and are bent downward, and serve as sights for checking. This bar, for convenience, I call the indicator. This bar also serves to prevent the beam from splitting, likewise to prevent the wings of the plow from wearing or pressing into the beam.

OPERATION.—Mark your ground one way as desired; the machine marks, drops, and covers the other way. Give a quick, downward motion on the lever, relieving it instantly for it' self backward motion. This places a hill on the lower slide (*m*). Then moving forward and giv-
162 ing the same motion to the lever every time the indicator comes to the furrow the corn drops from the lower slide (*m*) the instant you operate the lever, the discharge from the hopper falling through the spout, while the machine moves between the furrows.

The indicator, being from three to four feet forward of the operator, allows him to watch it; also, to keep a proper distance from the row previously planted, so that the operator could do his dropping and driving with perfect ease.

The self backward motion of the slide I, when left unencumbered by the thumb of the operator, has a vibratory motion. The vibratory mo-

tion is obtained by the wire passing through the handles close to and between arms (*h h*) and H in such a manner that when I bear down on the thumb lever, the weighted lever turns the rocker back, and arms (*h h*) press down on the elastic wire, so that when the thumb lever is relieved, the wire and the weight of the weighted lever throws the rocker forward, and arm H presses upward on the wire and again throws the rocker back, and so on, which causes the vibratory motion.

163 The advantages of agitating the slide are obvious, as an aperture passing through under the corn, (of different shades and sizes,) with a regular motion agitating the corn above the aperture, could not fill as readily as with a quick backward and forward motion of the aperture, as it agitates the corn in the aperture as well as above the aperture.

The weighted lever (*g*,) being connected to the rocker projecting forward sufficient to give the desired result. When the thumb lever is pressed down by the operator, the weighted lever, which is attached to rocker G, is raised up while the wire is pressed down; being relieved suddenly, both operating at the same time gives a vibratory motion to slide I. This is scarcely perceivable in the model, but in a working machine it vibrates nearly all the time the machine is passing between the furrows.

The quantity of grain to pass from the hopper can be regulated by changing slides I with larger or smaller apertures in them, also by the number of pins in the side of wheel C. This machine, when drilling, leaves the grains in almost any position the operator may desire.

164 If you wish your corn in hills, attach lever (O) to arm (*h*;) let the lower slide work as when checking. If you wish it drilled or scattered along in the furrow, raise the lower slide by placing the lever forward out of reach of slide I, and fasten it there in any convenient manner; this leaves the grain to pass through the spout unobstructed, as in other drills.

The cut-off plate (*t*) was the most difficult point in the machine to bring to perfection, although simple when discovered. The motion of the slide forward and back being almost simultaneous, it is found by experiment. Merely passing the aperture (*i*) even twice its size in the opening, will not discharge all the grain before the backward motion. If not discharged every time there would not an even number of grains fall. This would not do for the farmer, as the machine must do the work as perfect as by hand-dropping.

This I have accomplished by placing an angular cut-off plate over the opening in the hopper to the spout; this opening, being some two inches long, the plate capping all except what the brush caps. This allows the aperture in slide I to pass the brush one inch and half;

165 this gives the grain time to discharge, the brush giving strict measure, with the assistance of the angular plate of leather, the vibratory motion of the slide I always filling the aperture.

What I claim and desire to secure by letters-patent of the United States, is the agitation of the seed-slide I, by means of rocker G, wire (*s*,) and lever G, and X for the purpose of filling the seed-hole with a uniform amount of seed as set forth.

2nd. I claim the elastic cut-off plate *t*, in combination with brush (*v*,) arranged and constructed in the manner and for the purpose herein described.

JARVIS CASE. [L. S.]

Witnesses:
SAM'L GRUBB.
DAVID A. BROOKS.

166 The U. S. Patent-Office to all whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the records of this office, of the specification in the matter of the letters-patent granted George W. Brown, May 8, 1855, No. 12811.

In testimony whereof I, D. P. Hollaway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this fourteenth day of December, in the year of our Lord one thousand eight hundred & sixty-three, and of the Independence of the United States the eighty-eighth.

[SEAL.] D. P. HOLLOWAY.

167 George W. Brown, of Galesburg, Ill., letters-patent No. 12811, dated May 8, 1855; re-issued Nov. 10, 1857; again re-issued Dec. 11, 1860.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed planters, and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part thereof, in which Fig. 1 represents a perspective view; Fig. 2 represents a top view of the front part of the machine, with the covers of the seed-hoppers removed to show the interior; Fig. 3 represents a vertical section taken through the red line *x x* of Fig. 2; and Fig. 4 represents one of the runners detached.

Similar letters in the several figures denote like parts.

A A represent runner-shaped pieces curved up in front and shod with iron, *a*. These pieces are sharp in front so as to divide the
168 earth and form a furrow, and they widen out at their rear ends and are at said ends hollow, so as to serve as a shoe or tube for conveying the seed to the ground.

On top of these runners are arranged the said hoppers *c c*, which have an opening, *c*, in their bottoms, (as seen in Fig. 2.) Underneath these openings *c* is a plate, *d*, shown partially in dotted lines on the left of Fig. 2, and in full on the right-hand side of said figure. These two plates *d* are connected together by a transverse rod, *e*, to which a lever, *d*, is connected, said lever projecting upward, convenient to the operator's seat or stand E, so that he may vibrate said lever when the marker F comes opposite the hill or row previously planted. In each of the open rear ends of the runners A, is pivoted a valve, *f*, (Fig. 3,) which are connected at their upper ends to the plates *d*, and as these plates *d* are partially rotated by vibration of the rod *e*, the valves *f* also vibrate on their center of motion, so that the charge of seed, that is let down from the hopper through the plate *d*, is stopped by the valves *f*, and held until they vibrate again. When this is done, the previ-
169 ous charge drops to the ground. Thus by every vibration of the plates *d* and valves *f*, one charged is dropped into the opening through the rear of the runners, and caught and held, and the previous charge is dropped to the ground. This machine does not drop the seed automatically; on the contrary, it is operated by an attendant riding on the machine, who guides the dropping by the pointer F. The hoppers and operator's seat being mounted on the runners, forms the front of the machine.

To the sides of the hoppers at *g*, are hinged two outside supporting pieces G G, and to the inside of the hoppers, two other supporting pieces H H, which several pieces are connected together at their extreme rear ends by the cross-piece I. The supporting and covering wheels J J, are hung in these pieces G H, and a driver's seat K is arranged on this rear part of the machine.

The inside supporting pieces H H have cam-wedges *h h*, (Fig. 2, a separate side view of one of them being seen in Fig. 5,) which are made adjustable on said pieces H, by means of pins or bolts passing
170 through the holes 1 2 3, which makes the depth at which the runners enter the ground, and, consequently, the depth at which the seed are planted, adjustable at pleasure, by slipping said wedges further forward under the cross-beam L, or slipping it further back, which operations would, respectively, raise or lower the front part of the machine, and the runners with it at each side of the machine underneath the pieces G, are stops *i*, (one only being seen in Figure 1,) upon which said pieces G rest, and by which, and the cam-wedges under the cross-beam L, the driver, by shifting his position on his seat forward or back, may cause his weight to add to the raising or holding down of the front part of the machine as may be required.

When the corn is deposited in the ground, the wheels J J roll immediately over the furrows and cover up the seed, pressing the earth at the same time firmly over them.

M is a cross-bar extending across from point to point of the runners A, and to this and the frame in rear of it is fastened to the
171 tongue N, for guiding the machine, O being the double, and P the whiffle trees, to which the horses are attached.

Fig. 4 represents more fully the shape of the runners and the mode of shoeing them with iron. They are wedge-shaped from front to rear, so as to freely open and spread the furrow and afford width behind for the opening and valve *f*, as seen in Figure 3.

Having thus fully described the nature of my invention, what I claim therein as new and desire to secure by letters-patent, is—

In combination with the hoppers and their semi-rotating plates *d*, the runners A with their valves *f*, and their adjustment by means of the levers and cams, and the driver's weight for the purpose of carrying and dropping seeds by each vibration of the lever D, and to regulate the depth of the planting, as described.

GEORGE W. BROWN.

Witnesses:
ISAAC DELANO.
JABEZ EASTES.

(Indorsed:) George W. Brown's patent.

172 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the records of this , of re-issued letters-patent, granted George W. Brown, Nov. 10, 1857, except the drawing, which is identical with the original.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this ninth day of September, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States the eighty-sixth.

[SEAL.] D. P. HOLLOWAY.

173 *Re-issue No.* 508.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Ill., has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him dated 8th May, 1855, which letters having been surrendered by him, the same have been cancelled, and new letters ordered to issue on an amended specification,) which, he states, has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original & first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of fifteen dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said
174 George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given, in the words of the said George W. Brown, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this tenth day of November, in the year of our Lord one thousand eight hundred and fifty-seven, and of the Independence of the United States of America the eighty-second.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[L. S.]
J. HOLT,
Commissioner of Patents.

175 To the Commissioner of Patents:

The petition of George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, respectfully represents: That he did obtain letters-patent of the United States for certain improvements in seed-planters, which letters-patent bear date the eighth day of May, 1855; that he now believes that the same is inoperative and invalid by reason of a defective specification, which defect has arisen from inadvertence and mistake.

He, therefore, prays that he may be allowed to surrender the same, and requests that new letters-patent may issue to him, for the same invention, for the residue of the period for which the original patent was granted, under the amended specification herewith presented, he having paid fifteen dollars into the Treasury of the United States, agreeably to the requirements of the act of Congress in that case made and provided.

He further prays that A. B. Stoughton may be considered as his attorney in the matter.

GEORGE W. BROWN.

176 COUNTY OF WASHINGTON,
District of Columbia, ss:

On this 18th day of August, 1857, before the subscriber, a justice of the peace, personally appeared the above-named George W. Brown, and made solemn oath that, by reason of an insufficient or defective specification, his aforesaid patent is not fully available to him; and that the said error has arisen from inadvertency, accident, or mistake, and without any fraudulent or deceptive intention, to the best of his knowledge or belief.

EDM. F. BROWN,
Notary Public.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

177 Fig. 1 represents a perspective view of the machine;

Fig. 2 represents top plan of the front part of the machine, with the covers of the seed-hoppers removed;

Fig. 3 represents a vertical section, taken through the red line *x x*, of figure 2;

Fig. 4 represents one of the runners attached; and

Fig. 5 represents one of the supporting hinged pieces, not distinctly shown in the other figures.

Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all of them.

The nature of my invention relates to the combination of the driver's seat, with the two frames hinged together, so that the driver, placed behind the axle of the supporting-wheels, may use the rear frame as a lever, in connection with his own weight, for raising or lowering the front frame, which carries the seeding-apparatus for the purpose of raising them out of, or throwing them into, the ground, as circumstances may require.

178 To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings:

The front frame A carries the seed-hoppers B, seed-slide C, and lever D for operating it. E E are runner-shaped shoes for cutting and opening the furrows into which the seeds are to be dropped. These shoes are united at their points by a cross-piece, F, and by their rear portions, to the frame A.

G is a second frame, pivoted to the first-named frame A, by its pieces H H and I I, pivoted to the seed-box on the front frame, at the point *a*, as seen more distinctly in Figs. 2, 3, where *b* represents the rod by which these four arms are pivoted or hinged to the front frame. The object of this hinged joint between the two frames is, that each frame may have a motion independent of the other, but at the same time controlled by the driver on his seat behind the axle of the rear frame.

J J are two supporting and covering wheels, hung by their axles C to the rear frame G. Behind the line of the axles or journals of the

179 wheels J is located the driver's seat K. This seat has sufficient length to allow the driver to change his position thereon, and cause the frame G, with the axles of the supporting-wheels J as fulcra to act as a lever in raising up or throwing down the front frame, with

its shoes and seeding-apparatus, and thus place these parts entirely under the control of the driver, who, by simply shifting his weight, makes the rear frame a lever to the front one. Were it not for some simple means of raising these runner-shaped shoes, the machine could not be turned around without breaking it; but the driver, by moving himself backward on the seat, causes the rear frame to act as a lever in raising the front frame up, and the shoes out of the ground; and by moving himself forward on the seat causes his weight to aid in forcing the shoes into the soil, and hold them there.

d are the openings through the rear of the shoes for the seed to pass through into the furrow opened by said shoe. *e* is a valve in said opening to hold and then to drop the charge of seed. *f* is the seed-
180 ing-wheel within the hopper for conveying the seed from said hopper into the openings or tubes *d* through the shoe.

L is a pointer to enable the operator to see when the tube is over the proper place for depositing the seed, and to let him know when to open the valve *e* to keep the planting in rows.

The arm' I I (Fig. 5) have upon that part of them which pass under the front frame (see Fig. 2) adjustable wedges *g g*, which can be slipped further under, or drawn back, so as to set the front frame and its shoes at an approximate height or depth, which, as before stated, is varied by the driver on his seat as circumstances may require.

Having thus fully described the nature and object of my invention, what I claim therein as new, and desire to secure by letters-patent, is, in combination with the hinged frames or hinge-joint, the locating of the conductor's or driver's seat in rear of the supporting axle, so that as he moves forward or back on his seat the rear frame may act as a lever for lowering or raising the seeding part of the machine, and thus throw it into or out of the ground, as circumstances may require,
181 in turning around, or for passing over any obstruction, substantially as set forth.

GEORGE W. BROWN.

Witnesses:
A. B. STOUGHTON.
THO'S H. UPPERMAN.

(Indorsed:) Geo. W. Brown. Certif'd copy of patent to G. W. Brown. Nov. 10, 1857. Jarvis Case's copy. No drawings.

182 The U. States Patent-Office to all to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy, from the files of this office, of the correspondence and file-wrapper in the matter of the reissued letters-patent granted G. W. Brown, Nov. 10, 1857. No. 508.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this nineteenth day of October, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the ninetieth.

[SEAL.] T. C. THEAKER.

183 GALESBURG, KNOX CO., *June 21st*, 1853.

To the Honorable Mr. Mason, Commissioner of Patents.

SIR: I made application for a patent for a seed-planter last November, and not hearing anything from it since, and not having an agent

there, I thought it would not be improper to write a line enquiring the probable length of time that the Patent-Office is behind in the agricultural department. Also, I wish you would give me the name of som' good agent, in case there was any defect in my specification or drawings. If I knew the name of som' good agent I would write direct to him and employ him to examine my papers to know if they *was* all *write*, as the machine has proven to be of great utility in the West, or I *minte* say in our pra'rie country.

Yours, with respect,

GEORGE W. BROWN.

(Indorsed:) Letter, June 21. Geo. Brown. Filed July 2, 1853. D. Beed. Papers ret., June 13, '53. Wait answer a few days. July 2, '65. Case was ordered to issue in July; therefore no answer is necessary. Aug. 1, '53.

184 24-62. No. 508. *Re-issue.*

George W. Brown, of Galesburg, county of Knox, State of Illinois.

Seed-planter.

Rec'd Oct. 22d, 1857.
Petition, " " "
Affidavit, " " "
Specification, " " "
2 drawings, " " "
Old pat., " " "
Cert. dep.
Cash, $15, Oct. 22, 1857.
Examined October 29, '57. Lawrence.
2 issue, H. McCormick, Octo. 30, 1857.
4 patented May 8th, 1855. +
Re-issued Nov. 10, 1857. +
Recorded vol. 5, page 128.
P.
A. B. Stoughton, Wash'n, D. C.

(Indorsed:) Imp't in seed-planters.

185 *Re-issue, No.* 1091.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated May 8th, 1855; the same surrendered & new letters issued to him, dated November 10th, 1857; which last letters having been surrendered by him, the same have been cancelled & separate letters ordered to issue to him on five amended specifications,) which he states has not been known or used before his application, has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum fifteen dollars,

and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

186 These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand, at the city of Washington, this eleventh day of December, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

187 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete;

Fig. 2 represents a top plan of the seed-hoppers and valves, and frame-work supporting them;

Fig. 3 represents a vertical transverse section through the seed-hoppers, valve, and runners, or shoes, and showing a device for operating the valves; also representing parts of the frame for supporting them, as well as the marker;

Fig. 4 represents a side elevation of one of the runners;

Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame;

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

188 In the machine originally patented to me on the 2d day of February, 1853, and afterwards re-issued, many of the leading characteristics of the present invention may be found; but in my former invention I only mounted one person on the machine, where he could ride and better overlook his work, the other attendant walking upon the ground. In my present machine I mount both the seed-slide or valve-operator and the driver on the machine, so that both can ride and without inconveniencing each other. This I find to be the most desirable, and is preferred by the farmers.

The nature of this invention consists, in connection with a seed-plant-

ing machine that is operated by hand, the placing of both the driver and the person who operates the seed slides or valves, upon the machine, in such positions that each may attend to this particular duty without interfering with the duties of the other.

And it further consists, in connection with a seed-planting machine that is operated by hand, and upon which the driver and the person who operates the seed-slides, sit or stand, the so locating of said seats or stands, as that the weight of one of the persons may be used to counterbalance, or overbalance the weight of the other, for the purpose of more readily raising or lowering the seeding-apparatus.

To enable others, skilled in the art, to make and use my invention, I will proceed to describe the same with reference to the drawings :

A A represents a pair of runners or shoes, having their edges inclined upward so as to mount up or climb over, or break or cut
189 through intervening obstacles to their free passage through or over the ground. These runners are made thin at front, and gradually widen out towards their rear ends, so as to open a gash or furrow, wide enough to receive the grains that are to be planted therein, and without much lateral deplacement of the soil, or any tendency of the mucky or sticky soils to adhere to them, and thus clog up the machine and cause it to make rough or irregular openings for the seed. These runners are united by suitable cross-pieces to form a frame-work, upon which is mounted the seed-hoppers B B, and a seat or stand, C, for the person who works the seed-slides or valves *a a*, to occupy, or ride upon. D is the tongue, and E the double-trees, to which the team is hitched in the usual way.

The valves *a a* are united by a cross-bar, *b*, to which a lever, *c*, is attached, said lever being in convenient position for the operator to grasp and work from his seat or stand, C. Instead of the grains dropping from the seed slide or valves *a a*, in the hopper, down into the gash or furrow at one single fall, there may be a second set or valves *e e*, (Fig. 3,) extending down into the seed ducts or tubes *d d*, which catch the grains that drop from the hoppers, and allow those just previously dropped and caught to fall into the furrow.

This is more particularly advantageous when the hoppers set high up above the ground, as the machine will not advance so far over the ground during the time consumed in the falling of the grain, and consequently the operator can better gauge the dropping into the exact spot, and thus preserve straight rows, for the after cultivation.
190 F F are a pair of supporting wheels, and for convenience are also made to travel in the path of the runners, so as to press down the earth upon the planted seeds. Upon the journals or axles of these wheels, is supported the rear portion of the frame-work G, of the machine, and upon which rear portion of the frame-work the driver's seat H is placed. This seat extends back of the axle or centres of the wheels F, or so that the driver or occupant of the rear seat, by moving himself, or throwing his weight forward or backward may force the seeding-apparatus into, or raise it from the ground, for planting deeper, or for raising to surmount any obstacle, or for turning the machine around at the end of the furrow or " through."

The side pieces I I connecting the front and after portions of the frame may be united in front by rods or bolts, *f*, so as to form a hinged connection, and leave some play between said front and rear portions, and a lock, block, or stop, *h*, arranged against which the levers I I catch or stop, to prevent the rear of the frame from descending so low as to strike the ground or inconvenience the driver or occupant of the seat

H. *g* are adjustable purchase-blocks on the inside levers I, as seen at Fig. 5, which take under the frame of the seeding-apparatus, so as to define or adjust the extent to which said seeding apparatus may be raised or lowered. The pieces I I serve as levers by which the driver or occupant of the rear seat, by his weight, or his position, or
191 both, can raise up, let, or force down the seeding-apparatus, shoes, or seed-ducts, as will be clearly understood by reference to the drawings. The driver or occupant of the rear seat, too, by changing the position of his person or weight, can balance, counterbalance, or overbalance the weight of the person who sits or stands in front, thus controlling the machine, raising up or letting down, when necessary to do so, the seeding-apparatus, by simply moving his person, or throwing his weight backward or forward, as the case may be. The person who works the seed-slides, may sit or stand, facing the previously-made furrows or marks on the ground, which guide him in his operations, and, sighting by an indicator, K, moves his lever *c* when the indicator points over the previously-made mark, and thus successively drop the charges of grain in rows or straight lines, so as to be readily cultivated afterwards.

It is obvious that so long as I have two seats on the machine, it is immaterial upon which one the driver sits, or upon which one the seed-slide operator sits, as they may change seats and still work and conduct the machine in the same way.

The tongue D is rigidly fixed to the front frame, and the rear frame being hinged to the front frame by the levers or side-pieces I I, the occupant of the seat H can, by shifting his person or weight backward on his seat, raise up the front frame so that instead of the runners
192 or shoes, which are its ordinary supports, carrying said front frame, it is suspended to the rear frame at one end, and to the horses' necks at its front end, and thus carried, in which position the weight is on the wheels and the horses' necks; thus the tongue, too, becomes a lever, through the intervention of a hinged joint between its points and the carrying wheels, by which the management of the front frame is facilitated, and the entire operations of the machine put under the easy control of the person riding upon it.

Having thus fully described the nature and object of my invention, what I claim under this patent, is—

First. In combination with a seed-planting machine that is operated by hand, the placing of both the driver, and the person who operates the seed slides or valves, upon the machine, in such position as that each may attend to his particular duty without interfering with that of the other, substantially as described.

I also claim, in combination with a seed planting machine, that is operated by hand, and upon which the driver and the person who works the seed slides or valves, sit or stand, the so locating of said seats or stands, so that the weight of one of the persons may be used to counterbalance or overbalance the weight of the other, for the purpose of more readily raising or lowering the seeding-apparatus, substantially as, and for the purpose, described.
193

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him May 8th,

1855; re-issued November 10 1857; and again re-issued December 11, 1860, in five divisions, Nos. 1091, 1092, 1093, 1094, and 1095, the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful acts, and to repeal all acts and parts of acts heretofore made for that purpose;" and the act approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office, and for other purposes;" did, on this 5th day of May, 1869, decide that said patent ought to be extended:

Now, therefore, I, S. H. Hodges, Acting Commissioner of Patents, by virtue of the power vested in me by said acts of Congress, do re-
194 new and extend said re-issued patent No. 1091, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 8th day of May, 1869; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term twenty-one years.

In testimony whereof I have caused the seal of the Patent-Office to be hereunto affixed, this 5th day of May, 1869, and of the Independence of the United States the ninety-third.

[SEAL.]

S. H. HODGES,
Acting Commissioner.

195 *Re-issue No.* 1092.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated May 8th, 1855; the same surrendered and new letters issued to him, dated November 10th, 1857; which last letters, having been surrendered by him, the same have been cancelled, and separate letters ordered to issue to him or five amended specifications,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

196 These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years, from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed. Given under my hand at the city of Washington, this eleventh day of December, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

197 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete;

Fig. 2 represents a top plan of the seed-hoppers and valves, and the frame-work supporting them;

Fig. 3 represents a vertical section, taken transversely through the seed-hoppers, valves, and runners, or shoes, and showing the device for operating the valves; also representing parts of the frame-work for supporting them, as well as the marker;

Fig. 4 represents a side elevation of one of the runners;

Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

198 Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

To give the operator or conductor of a seed-planting machine full control of the machine whilst he rides upon it, involves the necessity of a peculiar arrangement of seat, in relation to the axle or the driving, supporting, or covering wheels, in which the axle is supported, so that the seat may be used as a lever, the occupant of it simply shifting his person, or his weight, and thus making a fulcrum of the axle, or the wheels that support it, may raise or lower the seeding-apparatus, or force it into the ground, as may be required. This is the object of this part of my invention.

And my invention consists in connection with a seed-planting machine, that has its seeding-devices forward of the driver's position, and forward of the axle, the locating of the seat in such relation to the axle of the supporting-wheels, as that the occupant of said seat may, by moving himself, or throwing his weight forward or backward on the seat, and without leaving it, force the seeding-apparatus into, or raise or lower it from the ground, as he may desire, or as the nature of the work may require.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same, with reference to the drawings.

199 A A represents a pair of runners, or shoes, upon which the seed-hoppers B B are mounted, and which together with other cross-pieces extending from shoe to shoe, form a frame to which the tongue D is united. F F are a pair of wheels, supported by journals, or axles in the frame-pieces I I, &c., that are all united to a cross-piece G, at the rear, and another cross-piece G, which is in, at, or near the line of the bearings or journals of the wheels F. These pieces form also a second frame, which is pivoted to the front frame at the points *f f*. The outer pieces I I, pass over, respectively, a lock, block, or stop N, on the front frame, and are so arranged as to prevent the rear of the frame from descending so low as to strike the ground, or incommode the driver or

occupant of the seat. *g g* are adjustable purchase-blocks on the inside levers I I, as seen at Fig. 5, which take under the cross-bar J of the front frame, and define or adjust the extent to which said front frame may be raised or lowered. The pieces I I, serve as levers by which the occupant of the seat H, by his weight, or his position, or both, can raise up, let, or force down, the seeding-apparatus, shoes, or seed-ducts, as may be required for turning the machine around, or for deeper, or less deep planting.

The seat H is secured to the frame-pieces G G, and it extends back of the line of the axles of the wheels, or centres of the wheels, so that the occupant of the seat may use it as a lever to raise up the front
200 frame-work and seeding-devices as above mentioned, by shifting his weight, or moving his person thereon. Should the axle extend clear across, from wheel to wheel, it would then occupy the place of the front cross-piece G, and the axle could then become the support of the seat H.

The seeding-apparatus herein represented, operates as follows: The shoes A, form a gash or furrow in the ground, and the seed-ducts are close in rear of them. The valves *a a* are united by a cross bar, *b*, to which a lever, *c*, is attached, said lever being in convenient position for the operator to grasp and move, from his seat on the machine. Instead of the grains dropping directly from the seed slides or valves *a a*, in the hopper, into the gash or furrow, or at one fall, there may be a second set of valves, *e e*, (Fig. 3,) extending down into the seed-ducts *d d*, which catch the grains that drop from the hoppers, and allow those just previously dropped and caught by them, to fall into the furrows; the object of this being, to let the seed have as little space to drop from as possible; because, whilst they are falling the machine is moving along over the field, and without the lower valves would dribble the grains along, instead of *leave* them in straight rows, or hills, so as to be easily cultivated afterwards. K is an indicator, or marker, which directs the operator in moving the lever *c*. As soon as the
201 marker points over the previously-planted hill or furrow, the lever is moved, which drops the charge of seeds in exact line with the others previously dropped, and thus perfect uniformity, and directness of rows or hills are preserved.

Having thus fully described the nature of this part of my invention, what I claim under this patent, is: in combination with a seed-planting machine, operated by hand, and having its seeding-devices forward of the centre of the wheels, and forward of the driver's seat and a hinged connection, the locating of the seat in such relation to a line drawn through the centres of the wheels or ground-supports, as that the occupant of said seat may, by moving himself, or throwing his weight forward or backward on his seat, without the necessity of rising, walking, or standing over, or near the seeding-devices, force the seeding-apparatus into or raise it from the ground, substantially as described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

202 Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him, May 8th, 1855; re-issued November 10, 1857; and again re-issued December 11, 1860, in five divisions, No's 1091, 1092, 1093, 1094 and 1095, the undersigned, in

accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful arts and to repeal all acts and parts of acts heretofore made for that purpose," and the act approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office and for other purposes," did, on this 5th day of May, 1869, decide that said patent ought to be extended:

Now, therefore, I, S. H. Hodges, Acting Comissioner of Patents, by virtue of the power vested in me by said acts of Congress, do renew and extend said re-issued patent, No. 1092, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 8th day of May, 1869; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof, I have caused the seal of the Patent-Office to be hereunto affixed, this 5th day of May, 1869, and of the Independence of the United States the ninety-third.

[SEAL.]

S. H. HODGES,
Acting Commissioner.

203 *Re-issue No.* 1093.

The United States of America to all to whom these letters-patent shall come:

Whereas, George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated May 8th, 1855; the same surrendered, & new letters issued to him dated November 10th, 1857; which last letters having been surrendered by him, the same have been cancelled, and seperate letters ordered to issue to him on five amended specifications,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

203½ These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years, from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown in the schedule hereunto annexed and is made a part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand, at the city of Washington, this eleventh day of December, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.

[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

204 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete;

Fig. 2 represents a top plane of the seed-hoppers and valves and frame-work supporting them;

Fig. 3 represents a vertical transverse section through the seed-hoppers, valve, and runners or shoes, and showing a device for operating the valves; also representing parts of the frame for supporting them, as well as the marker;

Fig. 4 represents a side elevation of one of the runners;

Fig. 5 represents a lock or block for defining or adjusting the descent of the rear part of the frame.

205 Similar letters of reference where they occur in the several figures denote corresponding parts of the machine in all the drawings.

When the operator of a seeding-machine walks upon the ground alongside of or behind the machine, it is very easy for him, by means of a lever, to raise or hold up certain portions of the machine, he himself being one of the points of support. But when the operator is mounted upon the machine, then the support afforded by his person is lost, and other means must be resorted to to effect this object. To accomplish this object with the operator or attendant mounted upon the machine, is the subject of this patent.

And the nature of my invention consists in so constructing a seed-planting machine, that has a hinged joint between its fixed points of support, and that has its seeding-devices arranged between said fixed points also, as that the seeding-devices may be raised up out of the ground by the conductor riding on the machine, and carried by or on the tongue or horse's neck, and by the supporting or carrying wheels jointly.

206 To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A A represents a pair of runner-shaped shoes, properly braced to each other, so as to from a frame-work for supporting the tongue D and double-trees E, to which the team is hitched; the seed-hoppers B B, the slides *a a*, cross-bar *b* that connects them together, and the lever *c* for operating said slides. These runners have an upward-inclined edge, so as to climb up and over, or cut or break through intervening obstructions in their path. They are, moreover, thin in front and gradually widening towards their rear ends, so as to slip easily, and with little friction, through the ground, and not become clogged with earth, having very little earth to move laterally out of their path. They open a gash or furrow into which the seed are dropped at stated intervals from the hoppers, and in measured quantities. They hold open the gash or furrow until the seed are completely in it, and for this purpose I prefer

to have the seed-ducts *d* in the runners and closed, so that they cannot clog up, especially in backing or in turning around.

F F are a pair of supporting-wheels, and, as a matter of economy, so arranged, with regard to the seeding-devices, as to become covering or pressing wheels for the planted grain.

207

I I are longitudinal pieces in which the journals of the axles of the wheels (or a single axle may be used if preferred) are supported. G G are cross-pieces extending from and fastened to the side-pieces, to form a frame-work upon which the conductor of the machine is placed in a seat, H, and where he rides and manages the machine. This seat is so placed that a portion of it shall be behind the axle or centers of the wheels F F, to enable the occupant of said seat to move forward or backward thereon, or so that by throwing his weight forward or backward he may lower or raise up the seeding-devices, or that part of the frame-work or machine to which they are connected as follows: The front ends of the longitudinal pieces I I are pivoted to the front part of the frame-work by bolts, *f*, or otherwise, to form a joint on which they can play, and on the inside pieces I I, are fastened a pair of purchase-blocks, *g g*, which take under the cross-pieces J (Fig. 2) of the front frame-work, and thus define the extent of motion of one frame on the other. These purchase-blocks are made adjustable for the purpose of regulating this extent of motion of one frame on the other. *h h* are locks, blocks, or stops, in the frame of the seeding-apparatus, which prevent the rear part G of the frame from descending so low as to strike the ground or incommode or inconvenience the occupant of the seat H.

208

C is a seat or location where a person may sit or stand, and operate the seed-slides. K is an indicator or pointer extending downward, so that its point will move over or near to the previously-made marks or furrows. The occupant of the seat or stand C faces the marker or indicator K, with the lever *c* in his hand, and whenever the indicator points to or over the previously-made marks, he moves his lever and through it the seed slides or valves *a e*, and the measured or designated charges of grain are dropped into and through the seed tube or duct, into the furrow. The slide or valve *e*, arranged in the seed duct or tube, is pivoted near its centre, and is in an almost vertical position, and opens and closes both, by a single operation of the lever *c*, thus saving the operator one half of the labor required to work a slide or valve, that must have two motions of the lever to open and close it, which is of great importance to him in his many duties.

There are two points in this machine that have unvarying positions or heights with regard to the ground, viz: the point of the tongue, as its height is defined by horses' necks, to which it is attached, and they standing of course upon the ground, & the journals or axle of the covering or supporting wheels F F, as they roll on the ground, and between these fixed points, the hinged connection between the front and rear part of the machine, is made, so as to admit of raising or lowering the seeding-devices.

209

Having thus fully described the nature and object of this part of my invention, what I claim under this patent is, in combination with a seed planting machine that has a hinged or yielding just between its fixed points of support, and with its seeding-devices between said points, the so connecting of the parts between said fixed points of support as that that portion of the machine carrying the seeding-devices may be raised up out of the ground, by the attendant riding on the machine,

and be carried by the tongue or horses' necks, and the supporting wheels, substantially as and for the purpose described.

GEO. W. BROWN.

Witnesses,
A. B. STOUGHTON.
E. COHEN.

210 Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him May 8th, 1855; re-issued November 10, 1857; and again re-issued December 11, 1860, in five divisions, Nos. 1091, 1092, 1093, 1094, and 1095, the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose; and the act approved the 27th day of May, 1848, entitled "An act to provide additional examiners in the Patent-Office, and for other purposes," did, on this 5th day of May, 1869 decide that said patent ought to be extended:

Now, therefore I, S. H. Hodges, Acting Commissioner of Patents, by virtue of the power vested in me by said acts of Congress, do renew and extend said re-issued patent, No. 1093, and certify that the same is hereby extended for the term of seven years from and after the expiration of the first term, viz, from the 8th day of May, 1869; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof I have caused the seal of the Patent Office
211 to be hereunto affixed, this 5th day of May, 1869, and of the Independence of the United States the ninety-third.

[SEAL.]

S. H. HODGES,
Acting Commissioner.

212 *Re-issue No.* 1094.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him, dated May 8th, 1855; the same surrendered and new letters issued to him, dated November 10th, 1857; which last letters having been surrendered by him, the same have been cancelled and seperate letters ordered to issue to him on five amended specifications,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signi-
213 fying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years, from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, con-

structing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this eleventh day of December, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
214 *Secretary of the Interior.*

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete;

Fig. 2 represents a top plan of the seed-hopper and valves, and frame-work supporting them;

Fig. 3 a vertical transverse section through the seed-hoppers, valve, and runners or shoes, and showing a device for operating the
215 valves; also representing parts of the frame for supporting them, as well as the marker;

Fig. 4 represents a side elevation of one of the runners;

Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference where they occur in the several figures denote corresponding parts of the machine in all the drawings.

In a seed-planting machine upon which the operator or attendant rides, and which has a hinged or yielding joint between the point of the tongue and the wheels, which support it upon the ground at a fixed height, and the seeding portion of which can be raised up, let down, or forced into the ground by the person riding on the machine, it is very important that some limit should be given to the necessary motion of one part upon the other, to prevent the rear part of the frame from descending so low as to cause it to strike the ground, or inconvenience the occupant of the seat thereon. To accomplish this is the object of this part of my invention.

And my invention consists in combining with a seed-planting machine, that is so made as that the forward part thereof can be raised up on to the supporting points, to be carried thereby, a lock,
216 block, or stop, which prevents the rear of the frame from descending so low as to strike the ground and inconvenience the occupant of the seat upon said rear part.

To enable others skilled in the art to make and use this part of my

invention, I will proceed to describe the same with reference to the drawings:

The front and rear portion of the machine is made up of two seperate frames as it were, the front part containing and carrying the hoppers and seeding-devices, and the rear portion having a seat, H, thereon, and carried upon a pair of wheels, F F. The pieces I I of the rear frame or part extend over on to the front part, and are pivoted or hinged thereto, as shown at *f f*, &c., so that one part may move upon the other part of said frame. I have shown four of these connecting *peices* I, that extend from the rear to the front part of the frame-work. The two outer *peices* pass in close proximity to the locks, blocks, or stops *h h* (Fig. 2) that are fastened on the front part of the machine, and the two inner *peices* may pass under the cross-*peice* J of the front part; and upon these inner *peices* may be placed wedges, or their equivalents *g*, (Figs. 2, 5,) where they come under the cross-piece J, said wedges, if
217 desirable, being adjustable to give a greater or less purchase, or extent of motion of one frame upon the other. Now suppose the attendant to be upon the seat H, and that he desires to raise up the seeding-devices, or the front part of the frame, assuming that the point of the pole or tongue D is connected to the horses' necks, and therefore fixed, he may throw or move his weight or person backward, which causes the inner levers I I to raise up the front part of the machine until the stops *h h* come against the outer *peices* I I, where it is stopped and held; and, so long as the occupant of the seat chooses, he can hold and carry it there by means of the raising levers, the weight of said front part being supported upon the necks of the horses and upon the wheels F. Thus the occupant of the seat H, by means of the hinged or yielding connection between the frames, and the lever connection between them also, can raise or hold up the front part of the machine, or let it down, or force it into the ground, as he may desire, and in doing so the rear part of the machine never drops so low as to strike the ground, the stops *h* preventing that casualty, nor so
218 low as to inconvenience the occupant of the seat H. The point of the tongue D being connected to the horses' necks, has, practically, a fixed vertical position above the ground. The rear part of the machine being supported *in* the wheels F, which are on the ground, has also a fixed vertical position over the centre of the wheels, and between these fixed positions the hinged or jointed connection must be made, so that the occupant of the seat, through the lever-connection between said front and rear portions, can suspend the front part of the machine upon the necks of the team and upon the wheels, and there carry it so long as he may desire, and particular'y when he is turning his machine around at the ends of the furrows.

Having thus fully describe' the nature and object of this part of my invention, what I claim under this patent is, in combination with a seed-planting machine, so made as that the forward part of the machine can be raised up on to the supporting-wheels and there carried, a lock, block, or stop, *h*, which prevents the rear part of the frame
219 from descending so low as to strike the ground or inconvenience the occupant of the seat upon said rear portion of the frame, substantially as and for the purpose described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him May 8th, 1855; reissued November 10, 1857; and again re-issued December 11, 1860, in five divisions, Nos. 1091, 1092, 1093, 1094, and 1095, the undersigned, in accordance with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled, "An Act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose;" and the act approved the 27th day of May, 1848, entitled, "An Act to provide additional examiners in the Patent-Office, and for other purposes," did, on this 5th day of May, 1869, decide that said patent ought to be extended.

Now, therefore, I, S. H. Hodges, Acting Commissioner of Pat-
220 ents, by virtue of the power vested in me by said acts of Congress, do renew and extend said re-issued patent, No. 1094, and certify that the same is hereby extended for the term of seven years, from and after the expiration of the first term, viz, from the 8th day of May, 1869; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof I have caused the seal of the Patent-Office to be hereunto affixed, this 5th day of May, 1869, and of the Independence of the United States the ninety-third.

[SEAL.]

S. H. HODGES,
Acting Commissioner.

221 *Re-issue No.* 1095.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him dated May 8th, 1855; the same surrendered & new letters issued to him, dated November 10th, 1857; which last lettres having been surrendered by him, the same have been cancelled and separate letters ordered to issue to him, on five amended specifications,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States, the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said im-
222 provement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators or assigns, for the term of fourteen years from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand, at the city of Washington, this eleventh day of December, in the year of our Lord, one thousand eight hundred and

sixty, and of the Independence of the United States of America, the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] PHILIP F. THOMAS,
Commissioner of Patents.

223 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete;

Fig. 2 represents a top plan of the seed-hoppers and valves, and frame-work supporting them;

Fig. 3 is a vertical transverse section through the seed-hoppers, valves, and runners or shoes, and showing a device for operating the valves, also representing parts of the frame for supporting them, as well as the marker;

Fig. 4 represents a side elevation of one of the runners;

224 Fig. 5 represents the lock or block, for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference, where they occur in the several figures denote corresponding parts of the machine in all the drawings.

In the seed planting machine, operated by hand, it is of course very desirable to relieve the operator of all the manual labor possible, inasmuch as his duties are of the most fatiguing character, and among the most arduous duties is that of operating the seed slides or valves, being obliged to extend his arm back and forth constantly and rapidly for days at a time. Where a single valve or slide is used, it is easy enough to do the dropping, as every forward and every backward motion of the arm or foot opens and closes the valve both, but the difficulty with the single valve is this, that the grain, in dropping from the hopper to the bottom of the furrow, has so far to fall that the forward motion of the machine dribb'es it along, and makes irregular planting. To avoid this, a valve has been placed down near the bottom, or in the seed-tube, which catches the grain from the hopper, and drops it from that low point into the furrow. But in the valves as heretofore

225 used in the seed-tubes, it required either two motions of the arm to open and close them, viz, one to open it, and another to close it, so that two motions of the arm was required for every charge of grain dropped, or else the quantity of seed dropped from the hopper had no measured relation in time or quantity to that dropped from the tube.

The nature of my invention consists in so combining a lever with the slide or valve in the hopper, and with a valve in the seed-tube, as that they may be both opened and closed by a half motion, or single motion of the lever operated by the attendant riding on the machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings:

B B represent a pair of hoppers for containing the seed to be planted. *a a* are the valves in said hoppers, these valves opening and closing the

exit into the seed-tubes at every single motion of the lever *c*, to which they are connected by the bar *b*. In the seeding-tubes *d d* are
226 hung valves *e e*, which vibrate on a centre, and they are connected to the bar or rod *b*, which is operated by the lever *c*, so that a single motion or half motion ot said lever not only opens, but also closes the seed-tube. Assume the valves to be in the position shown in Fig. 3: now move the lever *c* to the right of said figure, and this single operation opens the valves to let the charge of grain, previously caught and retained by them, drop to the furrow, and at the same instant closes it against the opposite side to catch the next charge, so that a half motion of the lever both opens and closes the valves.

And this saves the operator just one-half of his labor, which is a very material saving in a day's labor. If the valve or slide in the seed-tube required two motions to open and close it, then the valve in the hoppers would also require two motions, else the latter would furnish more grain to the former than would be a proper charge for each hill. I do not, of course, lay any claim to the opening and closing of a pair of valves by a double, or two motions. It is to avoid this double labor that my invention aims at; and its importance will be duly ap-
227 preciated when it is considered that one-half of the labor of the attendant is saved by my invention.

Having thus fully described my invention, what I claim under this patent, is so combining with a lever, by which both may be operated, a valve or slide in the seed-hopper, and a valve in the seed-tube, as that a half motion of the lever by the operator riding on the machine, by which they are operated, shall both open and close the seed-passages, at regular periods, and pass measured quantities only, substantially as described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

Whereas, upon the petition of George W. Brown, of Galesburg, Illinois, for the extension of the patent granted to him May 8th, 1855; re-issued November 10, 1857; and again re-issued December 11, 1860, in five divisions, Nos. 1091, 1092, 1093, 1094 and 1095, the undersigned, in accordauce with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An act to promote the progress
228 of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose;" and the act approved the 27th day of May, 1848, entitled, "An act to provide additional examiners in the Patent-Office, and for other purposes," did, on this 5th day of May, 1869, decide that said patent ought to be extended:

Now, therefore, I, S. H. Hodges, Acting Commissioner of Patents, by virtue of the power vested in me, by said acts of Congress, do renew and extend said re-issued patent, No. 1095, and certify that the same is hereby extended, for the term of seven years, from and after the expiration of the first term, viz, from the 8th day of May, 1869; which certificate, being duly entered of record in the Patent-Office, the said patent has now the same effect in law as though the same had been originally granted for the term of twenty-one years.

In testimony whereof, I have caused the seal of the Patent-Office to be hereunto affixed, this 5th day of May, 1869, and of the Independence of the United States, the ninety-third.

[SEAL.]

S. H. HODGES,
Acting Commissioner.

229 "*Exhibit D to deposition of Lester L. Bond.*"

The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of letters-patent granted George W. Brown, May 8, 1855. Im'pt in seed-planters.

In testimony whereof, I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this second day of August, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States the eighty-sixth.

[SEAL.] D. P. HOLLOWAY, *Com'r.*

230 No. 12811.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Ill., has alleged that he has invented a new and useful improvement in seed-planters, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Geo. W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the eighth day of May, one thousand eight hundred
231 and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement a description whereof is given in the words of the said Brown, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand at the city of Washington, this eighth day of May, in the year of our Lord one thousand eight hundred and fifty-five, and of the Independence of the United States of America the seventy-ninth.

ROBERT McC'ELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.

[L. S.] C. MASON,
Commissioner of Patents.

232 The schedule referred to in these letters-patent and making part the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful

improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part thereof, in which—

Fig. 1 represents a perspective view;

Fig. 2 represents a top view of the front part of the machine, with the covers of the seed-hoppers removed to show the interior;

Fig. 3 represents a vertical section taken through the red line *x x* of figure 2; and

Fig. 4 represents one of the runners detached.

Similar letters in the several figures denote like parts.

A A represent runner-shaped pieces curved up in front, and shod with iron, *a*. These pieces are sharp in front, so as to divide the
233 earth and form a furrow, and they widen out at their rear ends, and are at said ends hollow, so as to serve as a shoe or tube for conveying the seed to the ground.

On top of these runners are arranged the seed-hoppers C C, which have an opening, *c*, in their bottoms, (as seen in Fig. 2.) Underneath these openings *c* is a plate, *d*, shown partially in dotted lines on the left of Fig. 2, and in full on the right-hand side of said figure. These two plates, *d*, are connected together by a transverse rod, *e*, to which a lever, D, is connected; said lever projecting upward conveinient to the operator's seat or stand E, so that he may vibrate said lever when the marker F comes opposite the hill or row previously planted. In each of the open rear ends of the runners A is pivoted a valve, *f*, (Fig. 3,) which are connected at their upper ends to the plates *d*, and as these plates *d* are partially rotated by the vibration of the rod *e*, the valves *f* also vibrate on their center of motion, so that the charge of seed that is let down from the hopper through the plate *d*, is stopped by the valves *f*, and held until they vibrate again. When this is done the previous charge drops to the ground. Thus by every vibration of the plates *d* and
234 valves *f*, one charge is dropped into the opening through the rear of the runners, and caught and held, and the previous charge is dropped to the ground. This machine does not drop the seed automatically; on the contrary, it is operated by an attendant riding on the machine who guides the dropping by the pointer F. The hopper's and operator's seat being mounted on the runners forms the front of the machine.

To the sides of the hoppers at *g* are hinged two outside supporting-pieces G G, and to the inside of the hoppers two other supporting-pieces H H, which several pieces are connected together at their extreme rear ends by the cross-piece I. The supporting and covering wheels J J are hung in these piece' G H, and a driver's seat K is arranged on this rear part of the machine.

The inside supporting-pieces H H have cam-wedges *h h*, (Fig. 2, a separate side view of one them being seen in Fig. 5,) which are made adjustable on said pieces H by means of pins or bolts passing through the holes 1, 2, 3, which makes the depth at which the runners enter the ground, and consequently the depth at which the seed are planted
235 adjustable at pleasure, by slipping said wedges further forward under the cross beam L, or slipping it further back, which operations would, respectively, raise or lower the front part of the machine, and the runners with it. At each side of the machine underneath the pieces G are stops *i*, (one only being seen in Fig. 1,) upon which said pieces G rest, and by which and the cam-wedges under the cross-beam L, the driver, by shifting his position on his seat forward or back, may cause his weight to add to the raising or holding down of the front part of the machine, as may be required.

When the corn is deposited in the ground, the wheels J J roll immediately over the furrows and cover up the seed, pressing the earth at the same time firmly over them.

M is a cross-bar extending across from point to point of the runners A, and to this and the frame in rear of it is fastened the tongue N for guiding the machine. O being the double and P the whiffle trees to which the horses are attached.

Fig. 4 represents more fully the shape of the runners, and the
236 mode of shoeing them with iron. They are wedge-shaped from front to rear so as to freely open and spread the furrow, and afford width behind for the opening and valve *f*, as seen in Fig. 3.

Having thus fully described the nature of my invention, what I claim therein as new and desire to secure by letters-patent, is—

In combination with the hoppers and their semi-rotating plates *d*, the runners A, with the valves *f*, and their adjustment by means of the levers and cams and the driver's weight, for the purpose of carrying and dropping seeds by each vibration of the lever D, and to regulate the depth of the planting as described.

GEORGE W. BROWN.

Witnesses:
ISAAC DELANO.
JABEZ EASTES.

237 *Exhibit E to deposition of Lester L. Bond.*

The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This to certify that the annexed is a true copy from the records of this office of the re-issued letters-patent to Geo. W. Brown, re-issued Nov'r 10th, 1857. Imp't in seed-planters.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this second day of August, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States the eighty-sixth.

[SEAL.] D. P. HOLLOWAY, *Com'r.*

No. 508.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Ill., has alleged that he has invented a new and useful improvement in seed-planters, (for
238 which letters-patent were issued to him dated 8th May, 1855; which letters having been surrendered by him, the same have been cancelled, and new letters ordered to issue on an amended specification,) which he states has not been known or used before his application, has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of fifteen dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand at the city of Washington this tenth day of November, in the year of our Lord one thousand eight hundred and fifty-seven, and of the Independence of the United States of America the eighty-second.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[L. S.]
J. HOLT,
Commissioner of Patents.

The schedule referred to in these letters-patent & making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Fig. 1 represents a perspective view of the machine;

Fig. 2 represents a top plan of the front part of the machine, with the covers of the seed-hoppers removed;

Fig. 3 represents a vertical section taken through the red line *x x* of Figure 2;

Fig. 4 represents one of the runners detached; and

Fig. 5 represents one of the supporting hinged pieces not distinctly shown in the other figures.

Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all of them.

The nature of my invention relates to the combination of the driver's seat with the two frames hinged together, so that the driver, placed behind the axle of the supporting-wheels, may use the *the* rear frame as a lever, in connection with his own weight, for raising or lowering the front frame which carries the seeding-apparatus, for the purpose of raising them out of or throwing them into the ground, as circumstances may require.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same, with reference to the drawings. The front frame A carries the seed-hoppers B, seed-slide *c*, and lever D for operating it. E E are runner-shaped shoes for cutting and opening the furrows into which the seeds are to be dropped. These shoes are united at their points by a cross-piece, F, and by their rear portions to the frame A.

G is a second frame, pivoted to the first-mentioned frame A by its pieces H H, and I I pivoted to the seed-box on the front frame at the

point *a*, as seen more distinctly in Figs. 2, 3, where *b* represents the rod by which these four arms are pivoted or hinged to the front frame. The object of this hinged joint between the two frames is that each frame may have a motion independent of the other, but at the same time controlled by the driver on his seat behind the axle of the rear frame.

J J are two supporting and covering wheels, hung by their axles *c* to the rear frame G. Behind the line of the axles or journals of the
242 wheels J is located the driver's seat K. This seat has sufficient length to allow the driver to change his position thereon, and cause the frame G, with the axles of the supporting wheels J as fulcra, to act as a lever in raising up or throwing down the front frame, with its shoes and seeding-apparatus, and thus place these parts entirely under the control of the driver, who, by simply shifting his weight, makes the rear frame a lever to the front one.

Were it not for some simple means of raising these runner-shaped shoes the machine could not be turned around without breaking it. But the driver, by moving himself backward on the seat, causes the rear frame to act as a lever in raising the front frame up and the shoes out of the ground; and by moving himself forward on the seat causes his weight to aid in forcing the shoes into the soil and hold them there.

d are openings through the rear of the shoes for the seed to pass through into the furrow opened by said shoe. *e* is a valve in said opening to hold and then to drop the charge of seed.

243 *f* is the seeding-wheel within the hopper for conveying the seed from said hopper into the openings or tubes *d* through the shoe.

L is a pointer to enable the operator to see when the tube is over the proper place for depositing the seed, and to let him know when to open the valve *e* to keep the planting in rows.

The arms I I (Fig. 5) have, upon that part of them which pass under the front frame, (see Fig. 2,) adjustable wedges, *g g*, which can be shipped further under or drawn back so as to set the front frame and its shoes at an approximate height or depth, which, as before stated, is varied by the driver on his seat as circumstances may require.

Having thus fully described the nature and object of my invention, what I claim therein as new, and desire to secure by letters-patent, is: in combination with the hinged frames or hinge-joint, the locating of the conductor's or driver's seat in the rear of the supporting-axle, so that, as he moves forward or back on his seat, the rear frame may act as a lever for lowering or raising the seeding part of the machine, and thus throw it into or out of the ground, as circumstances may require, in turning around or for passing over any obstruction, substantially as set forth.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
THO'S. H. UPPERMAN.

244 *Exhibit C to deposition of Lester L. Bond.*

The U. States Patent-Office to all to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the re-issued letters-patent granted Geo. W. Brown, February 16th, 1858. No. 526.

In testimony whereof I, D. P. Holloway, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this

sixth day of March, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the eighty-ninth.

[SEAL.] D. P. HOLLOWAY.

245 *Re-issue. No. 526.*

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Ill., has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him dated Feb. 2, 1853; which letters having been surrendered by him, the same have been cancelled, and new letters ordered to issue to him on an amended specification,) which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of fifteen dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

246 These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown, in the schedule hereto annexed, and is made part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand at the city of Washington this sixteenth day of February, in the year of our Lord one thousand eight hundred and fifty-eight, and of the Independence of the United States of America the eighty-second.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

[L. S.] J. HOLT,
Commissioner of Patents.

247 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, formerly of Tylerville, in the county of Warren and State of Illinois, but now of Galesburg, in the county of Knox, and State aforesaid, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which Fig. 1 represents an elevation of the rear part of the machinery.

Fig. 2 represents a side view.

Fig. 3 represents a top plan, when fitting for drilling in the seed, and Fig. 4 represents a similar top plan, when fitted for planting in check-rows.

Fig. 5 represents a side view of the machine, when fitted for planting check-rows.

Fig. 6 represents the cap and pin used in effecting a change in the machine.

248 Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all.

The nature of my invention relates to the construction of the shoe for opening and holding open the furrows until the seed drops through its tube which is made in the rear of said shoe.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The machine as represented in Figs. 1, 2, 3 is arranged for drilling in the seed.

But the most important feature connected with the machine is its adaptability to planting seed in check-rows, and I shall describe it more particularly in connection with this latter kind of planting.

On the front part of the frame A, are two shoes B B, which are shaped somewhat like a sled-runner, but having its convex edge *a*, sharp enough to cut through the soil or sod and thus open out a furrow.

The shoe B, gradually widens out towards its rear end until at
249 that point it is wide enough to admit of an opening *b*. through which the corn or other seed from the hopper may pass into the furrow.

It is an easy matter to open a furrow for seed, but to keep it open and keep the seed-duct from choking up with the earth is not so easy.

I therefore make the shoe and seed-tube in one piece, and whilst the front of the shoe is cutting and opening the furrow, the rear portion is holding the furrow open until the seeds are deposited in it.

As a furrow-opener this shoe is perfect; but in turning the machine at the end of the rows it will be at once seen that some means must be devised for raising these shoes, which support and sustain the main frame, hopper, &c.

This, in connection with the shoe, constitutes another important feature in the invention. A represents the main frame supported by the shoes B, and D represents a secondary frame pivoted to the main frame at *c*, Fig's 2, 5, said secondary frame D, carrying two bearing and covering rollers E E, which, when the said frame D is used as a lever
250 by the operator walking behind the machine to raise up the runners or shoes out of the ground, become the fulcra of said lever, and *c* the pivoting point, and thus the main frame and shoes are raised up clear of the ground, or sufficiently so to allow the machine to turn around without wrenching or breaking it. In planting corn the wheels and axle are dispensed with entirely, and without these the machine is exceedingly cheap, when its efficiency is taken into consideration.

I am aware that a rotary coulter has been used in advance of a seed-tube to open the furrow, but it will not hold it open until the seed are deposited.

I am also aware that a sort of concave coulter, with a seeding-tube in rear of it, has been used. But this will not cut through the sods, and open a furrow properly, its tendency being to pile and raise up everything upon the coulter and thus clog the machine.

My shoe disturbs nothing. It cuts through and gently pushes aside

the soil, &c., and has enclosed within its rear portion a tube into which no earth can get and through which seeds pass to the
251 very bottom of the furrow, with nothing to disturb them and where they are covered up. I describe only those parts of the machine which I claim, the other parts being of any ordinary well-known arrangement, and they are all shown collectively, and many of them separately, in the drawings.

The particular construction of the shoe and its combination with the jointed frames being the essential things.

Having thus fully described the nature and object of my invention, I would state that I am aware a rotary coulter has been used in opening a furrow for seed to be dropped into from a seeding-machine, but as the tube is necessarily placed behind such a coulter the earth will run into and fill up the furrow between the coulter and the tube before the seed are dropped into it. I do not, therefore, claim any such contrivance, but what I do claim as new, and desire to secure by letters-patent, is a shoe for opening a furrow, which has a convex edge in front and a seeding-tube in its rear end, so that it may cut through any grass, open
252 out a furrow, and hold it open until the seeds are deposited in it, substantially as herein set forth.

GEORGE W. BROWN.

Witnesses:
A. B. STOUGHTON.
THO'S H. UPPERMAN.

253 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the drawing, in the matter of the re-issued letters-patent granted George W. Brown, dated February 16, 1858, No. 526.

In testimony whereof I, S. H. Hodges, Acting Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this fourteenth day of October, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States the ninety-third.

[SEAL.] S. H. HODGES,
Acting Com'r.

The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the
254 records of this office of the specification in the matter of re-issued letters-patent granted George W. Brown, dated February 16, 1858, No. 526.

In testimony whereof I, S. H. Hodges, Acting Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this thirteenth day of October, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States the ninety-third.

[SEAL.] S. H. HODGES,
Acting Com'r.

George W. Brown, of Galesburg, Ill.; letters-patent No. 9893, dated Aug. 2nd, 1853; re-issue No. 526, dated Feb'y 16, 1858.

To all whom it may concern:

Be it known that I, George W. Brown, formerly of Tylerville, in the

county of Warren, and the State of Illinois, but now of Galesburg, in the county of Knox, and the State aforesaid, have invented certain new and useful improvements in seed-planters, and I do hereby declare
255 the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which Fig. 1 represents an elevation of the rear part of the machine. Fig. 2 represents a side view. Fig. 3 represents a top plan when fitting for drilling in the seed. And Fig. 4 represents a similar top plan when fitted for planting in check-rows. Fig. 5 represents a side view of the machine when fitted for planting check-rows. Fig. 6 represents the cap and pin used in effecting a change in the machine. Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all. The nature of my invention relates to the construction of the shoe for opening and holding open the furrow until the seed drops through its tube, which is made in the rear end of said shoe. To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings: The machine, as represented in Figs. 1, 2, 3, is arranged for drilling in the seed. But the most important feature
256 connected with the machine is its adaptability to planting seed in check-rows, and I shall describe it more particularly in connection with this latter kind of planting. On the front part of the frame A are two shoes, B B, which are shaped somewhat like a sled-runner, but having its convex edge, *a*, sharp enough to cut through the soil or sod, & thus open out a furrow. The shoe B gradually widens out towards its rear end, until at that point it is wide enough to admit of an opening, *b*, through which the corn or other seed from the hopper may *pop* into the furrow. It is an easy matter to open a furrow for seed, but to keep it open, and to keep the seed-duct from choking up with the earth, is not so easy. I therefore make the shoe and seed-tube in one piece, and whilst the front of the shoe is cutting and opening the furrow, the rear portion is holding the furrow open until the seeds are deposited in it. As a furrow-opener, this shoe is perfect, but in turning the machine at the end of the rows, it will be at once seen that some means must be devised for raising these shoes, which support and sustain the main frame, hopper, &c. This, in connection
257 with the shoe, constitute another important feature in the invention. A represents the main frame, supported by the shoes B, and D represents a secondary frame pivoted to the main frame at *c*, Fig's 2, 5, said secondary frame D carrying two bearing and covering rollers, E E, which, when the said frame D is used as a lever by the operator walking behind the machine to raise up the runners or shoes out of the ground, become the fulcra of said lever, and *c* the pivoting point, and thus the main frame and shoes are raised up clear of the ground, or sufficiently so to allow the machine to turn around without wrenching or breaking it. In planting corn, the wheels and axle are dispensed with entirely, and without these the machine is exceedingly cheap, when its efficiency is taken into consideration.

I am aware that a rotary coulter has been used in advance of a seed-tube to open the furrow, but it will not hold it open until the seed are deposited. I am also aware that a sort of concave coulter, with a seeding-tube in rear of it, has been used. But this will not cut through
258 the sods, and open a furrow properly, its tendency being to pile and raise up everything upon the coulter, and thus clog the machine. My shoe disturbs nothing. It cuts through and gently pushes aside the soil, &c., and has enclosed within its rear portion a tube into

which no earth can get, and through which seeds *pap* to the very bottom of the furrow, with nothing to disturb them, and where they are covered up. I describe only those parts of the machine which I claim, the other parts being of any ordinary well-known arrangement, and they are all shown collectively, and many of them separately, in the drawings, the particular construction of the shoe, and its combination with the jointed frames, being the essential things. Having thus fully described the nature and object of my invention, I would state that I am aware a rotary coulter has been used in opening a furrow for seed to be dropped into from a seeding-machine, but as the tube is necessarily placed behind such a coulter, the earth will run into and fill up the furrow between the coulter and the tube before the seed are
259 dropped into it. I do not, therefore, claim any such contrivance, but—

What I do claim as new, and desire to secure letters-patent, is a shoe for opening a furrow which has a convex edge in front, and a seeding tube in its rear end, so that it may cut through any grass, open out a furrow, and hold it open until the seeds are deposited in it, substantially as herein set forth.

GEORGE W. BROWN.

Witnesses:
A. B. STOUGHTON.
THO'S H. UPPERMAN.

260 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the files of this office of the specification and amendments as originally filed *in re* of the letters-patent granted G. W. Brown, Feb. 16, 1858, as re-issue No. 526.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this thirteenth day of June, in the year of our Lord one thousand eight hundred and sixty-seven, and of the Independence of the United States the ninety-first.

[SEAL.] T. C. THEAKER.

261 To all whom it may concern:

Be it known that I, George W. Brown, formerly of Tylerville, in the county of Warren, and State of Illinois, but now of Galesburg, in the county of Knox, and State aforesaid, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, & exact description of the same, reference being had to the accompanying drawings making a part of the specification, in which—

Fig. 1 represents an elevation of the rear part of the machine;

Fig. 2 represents a side view;

Fig. 3 represents a top-plan, when fitted for drilling in the seed; and

Fig. 4 represents a similar top-plan, when fitted for planting in check-rows.

Fig. 5 represents a side view of the machine when fitted for planting check-rows.

Fig. 6 represents the cap and pin used in effecting a change in the machine.

Similar letters of reference, where they occur in the several figures, denote like parts of the machine in all.

262 The nature of my invention relates to the construction of the shoe, for opening and holding open the furrows until the seed drops through its tube, which is made in the rear end of said shoe; and also to the combination of such a shoe, with the joint or hinge, so as to admit of raising said shoe when the machine is to be turned around, or at any other time.

To enable others skilled in the art to make and use my invention, I I will proceed to describe the same, with reference to the drawings.

The machine, as represented in Figs. 1, 2, 3, is arranged for drilling in the seed, but the most important feature connected with the machine is its adaptability to planting seed in check-rows, and I shall describe it more particularly in connection with this latter kind of planting. On the front part of the frame A are two shoes, B B, which are shaped somewhat like a sled-runner, but having its convex edge, *a*, sharp enough to cut through the soil or sod, and thus open out a furrow. The shoe B gradually widens out towards its rear end, until at that point it is
263 wide enough to admit of an opening *b* thro' which the corn or other seed from the hopper may pass into the furrow. It is an easy matter to open a furrow for seed, but to keep it open, and to keep the seed-duct from choking up with the earth, is not so easy. I therefore make the shoe and seed-tube in one piece, and whilst the front of the shoe is cutting and opening the furrow, the rear portion is holding the furrow open until the seeds are deposited in it. As a furrow-opener this shoe is perfect, but in turning the machine at the end of the rows, it will be at once seen that some means must be devised for raising these shoes which support and sustain the main frame, hopper, &c. This, in connection with the shoe, constitutes another important feature in the invention. A represents the main frame supported by the shoes B, and D represents a secondary frame pivoted to the main frame at *c*, Figs. 2, 5, said secondary frame D carrying two bearing and covering rollers, E E, which, when the said frame D is used as a lever by the oper-
264 ator walking behind the machine to raise up the runners or shoes out of the ground, become the fulcra of said lever, and *c* the pivoting point, and thus the main frame and shoes are raised up clear of the ground, or sufficiently so to allow the machine to turn around without wrenching or breaking it. In planting corn, the wheels and axle are dispensed with entirely, and without these the machine is exceedingly cheap when its efficiency is taken into consideration.

I am aware that a rotary coulter has been used in advance of a seed-tube to open the furrow, but it will not hold it open until the seed are deposited. I am also aware that a sort of concave coulter, with a seeding-tube in rear of it, has been used. But this will not cut through the sods, and open a furrow properly, its tendency being to pile and raise up everything upon the coulter, and thus clog the machine. My shoe disturbs nothing; it cuts through and gently pushes aside the soil, &c., and has enclosed within its rear portion a tube into which no earth can get, & through which seeds pass to the very bottom of the furrow,
265 with nothing to disturb them, and where they are covered up.

I describe only those parts of the machine which I claim, the other parts being of any ordinary well known arrangement, and they are all shown collectively, and many of them separately, in the drawings.

The particular construction of the shoe, and its combination with the jointed frames, being the essential things.

Having thus fully described the nature and object of my invention, I would state that I am aware a rotary coulter has been used in opening a

furrow for seed to be dropped into from a seeding machine, but, as the tube is necessarily placed behind such a coulter, the earth will run into and fill up the furrow between the coulter and the tube before the seed are dropped into it. I do not therefore claim any such contrivance, but, what I do claim as new and desire to secure by letters-patent, is a shoe for opening a furrow, which has a convex edge in front and a seeding-
tube in its rear end, so that it may cut through any grass, open
266 out a furrow, and hold it open until the seeds are deposited in it, substantially as therein set forth.

And I claim, in combination with a shoe so constructed, the joint or hinge in the machine, by which means said shoe may be raised or lowered to admit of turning around, or for entering the ground, substantially as described.

GEORGE W. BROWN.

Witnesses:
A. B. STOUGHTON.
THO'S H. UPPERMAN.

Rec'd & filed Oct. 22, 1857.

267 WASHINGTON, *Oct. 31st*, 1857.

Hon. J. HOLT, *Comm. of Patents:*

SIR: I have to acknowledge the receipt of yours of the 30th inst., suggesting an amendment to the spec'f'n of G. W. Brown for a seed-planter. In accordance therewith, I have to request that the subjoined amendment may be made to the spec'f'n which is herewith returned.

Resp't'y,

A. B. STOUGHTON,
Att'y for Brown.

Amend Geo. W. Brown's spec'f'n as follows:

Erase all after the word "shoe" in the 27th line of page 1 to the end of 2 line of page 2.

On page 4, erase from the 22nd to the 26th lines inclusive.

A. B. STOUGHTON, *Att'y.*

31 OCT., '57.

(Indorsed:) Amendment. G. W. Brown. Seed-planter. Rec'd Nov. 2, '57, & filed by Jenckes.

268 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the files of this office of the correspondence & file-wrapper in the matter of the re-issued letters-patent granted G. W. Brown, Feb'y 16, 1858, No. 526.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this nineteenth day of October, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the ninetieth.

[SEAL.] T. C. THEAKER.

269 U. S. PATENT-OFFICE, *Oct.* 30, 1857.

GEO. W. BROWN,
(Care of A. B. Stoughton, esq.,)
Wash., D. C.:

SIR: In the matter of your app'l. for re-issue of the patent granted you August 2, 1853, for imp't in seed-planters, the spec'n is herewith ret'd, and attention called to pencil note thereon.

(Endorsed:) Brief-letter. G. W. Brown. Seed-planter. Oct. 30, 1857.

270 WASHINGTON, *Oct.* 31, 1857.

Hon. J. HOLT, *Comm. of Patents:*

SIR: I have to acknowledge the receipt of yonrs of the 30th instant, suggesting an amendment to the spec'f'n of G. W. Brown for a seed-planter. In accordance therewith, I have to request that the subjoined amendments may be made to the spec'f'n which is herewith returned.

Resp't'y,

A. B. STOUGHTON,
Att'y for Brown.

Amend G. W. Brown's spec'f'n as follows:

Erase all after the word "shoe" in the 27th line of page 1 to the end of the 2d line of page 2.

On page 4, erase from the 22d to the 26 lines inclusive.

A. B. STOUGHTON, *Att'y.*

31 OCT., '57.

(Indorsed:) Amendment. G. W. Brown. Seed-planter. Rec'd Nov. 2, 1857, and filed.

271 U. S. PATENT OFFICE, *Nov. 3d*, '57.

GEO. W. BROWN, esq.,
(Care of A. B. Stoughton,)
Present:

SIR: Upon ex'o. of your appl. for re-issue of the patent granted you Aug. 2d, 1853, for imp't in seed-planters, it is found that the subject-matter of your 1st claim is shown in the appl. of Job Brown for a corn-planter, rejected June 3, 1853, and subsequently withdrawn, in view of the reference to the patent granted Henry Todd for a seed-planter, Dec'r 15th, 1843; which patent also shows the device claimed by you.

(Indorsed:) Brief-letter. Geo. W. Brown. Seed-planter. Nov. 3, '57.

272 WASHINGTON, *Jan'y 28th*, 1858.

Hon. J. HOLT, *Comm'r of Patents:*

SIR: In the matter of the application of Geo. W. Brown for a re-issue of his patent of the 2d of August, 1853, which was refused on the ground of alleged similarity to the application of Job Brown, I herewith present a paper from Job Brown withdrawing all claim to said invention. This, together with the fact that George W. Brown's application was prior to that of Job Brown, will, it is believed, be sufficient to

warrant the office in granting the claim asked for by George W. Brown in his application for the re-issue.

I herewith also return to the office the original patent.

Resp'l'y,

A. B. STOUGHTON,
Att'y for G. W. Brown.

(Indorsed:) Letter. Filed Jan. 28, 1858, A. B. Stoughton.

273 62. × ×.

23.] Re-issue. No. 526.

George W. Brown, of Galesburg, County of Knox, State of Illinois. Seed-planter.

Rec'd, Oct. 22, 1857.
Petition, " " "
Affidavit, " " "
Specification, " " "
1. Drawing, " " "
Old patent, " " "
Cert. dep.
1. Cash, $15. Oct. 22, 1857.
Examined. A. T. Jenckes, Jan. 29, 1858.
2. Issue H. McCormick, Feb'y 1, 1858.
4. Patented Feb. 2, 1853. ×.
Re-issued Feb. 16, 1858. ×.
Recorded vol. 5, page 202.
P.

A. B. Stoughton, Wash.
274 Ret'd spec'n Oct. 30, '57.
Rej. Nov. 3, '57.

See within Job Brown's withdrawal of claims, &c., filed Jan'y 28, 1858, and *rej*'d to on said Job Brown's, rejected and withdrawn. Filed Jan'y 9, 1854.

(Indorsed:) Improvement in seed-planters.

275 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the re-issued letters-patent granted George W. Brown, Sept. 11th, 1860, No. 1038.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this nineteenth day of October, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the ninetieth.

T. C. THEAKER.

Re-issue No. 1038.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for

which letters-patent were issued to him, dated Feb. 2d, 1853; which letters having been surrendered by him, the same have been cancelled and new letters issued to him dated Feb. 16, 1858; which last letters
276 having been surrendered by him, the same have been cancelled & new letters ordered to issue to him on five amended specifications,) which he states has not been known or used before his application, has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the second day of February, one thousand eight hundred and fifty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said improvement, a description whereof is given in the words of the said George W. Brown in the sc'edule hereunto annexed, and is made part of these presents.

277 In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand at the city of Washington, this eleventh day of September, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[L. S.] PHILIP F. THOMAS,
Commissioner of Patents.

The sc'edule refer'ed to in the letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters; and I do hereby declare the following to be a full, clear, and exact description of the same, reference be-
278 ing had to the accompanying drawings making a part of this specification in which—

Fig. 1 represents a perspective view of my seed-planting machine arranged for automatic or "machine dropping," as it is termed;

Fig. 2 represents a side elevation of the same;

Fig. 3 represents the same machine arranged for hand-dropping;

Fig. 4 represents a side elevation; and

Fig. 5 a top plan of the machine as arranged for hand-dropping, as shown in Fig. 3.

Similar letters, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

In a seed-planting machine that is composed mainly of frame-work, and

that is supported by and carried on not less than two runners and not less than two wheels, it is important that there should be a joint somewhere between the supporting points of the machine upon the ground, for several reasons, and among them I mention the following, viz, that one part of the machine may be raised, lowered, adjusted, or supported on the other part of the machine, for defining the depth of the planting for passing over intervening obstacles, and for turning the machine around at the end of the rows or furrows. The nature of this part of my invention consists in combining with a seed-planting machine,
279 constructed principally of frame-work, and with not less than two runners and two wheels, a hinged joint between the point of the tongue and the rear part of the machine, (or between what I term its ground supports,) so that one part may, by means of said hinge-joint, be raised, lowered, adjusted, or supported on the other part, for purposes herein mentioned. Meaning by "one part" and "the other part," the part in advan'e and the part in rear of said hinge-joint. To enable others skilled in the art to make and use this invention, I will proceed to describe the same with reference to the drawings. A A represents a pair of runners or shoes properly braced apart by cross-pieces, B C D, in any manner that will make them sufficiently riged, and at a distance from each other equal to that between the rows or hills of corn or other seeds to be planted. E is a tongue, united to the cross-pieces in any of the usual modes, so as to be midway between the pair of runners, to make a centre draft. To this tongue, which may be said to constitute a part of the frame of the machine, the double-trees F, to which the team is hitched, is fastened. The seed-hoppers G G may be secured to this frame immediately over the rear of the runners. The seed slides or valves *a*, that allow the grain in measured quan-
280 tities to pass out of the hoppers and into the gash or furrow prepared for them by the runners, may be connected together by a bar *b*, to which a lever *c*, or its equivalent, is attached, so that the attendant from his seat or stand H may readily see the previously made marks in the ground, *did* operate the lever *c* to make the droppings conform thereto. To the side pieces I of the frames are connected two bars or levers J J, (one on each side,) by a pivot-pin or hinge-joint at *d*, at their front ends, and their rear ends supported on the journals of the rollers or wheels K, said journals acting as the fulcra of said levers J. To these journals may also be connected the stirrup-straps *e*, to which the pieces or levers L L are attached, the rear ends of these pieces L, being connected by a cross-bar, M, which the driver or attendant may seize, and by raising it up or pressing it down, correspondingly lower or raise the pieces I, and through them the runners A, by means of the fulcra or supports on the wheels K and the hinged connections. The pieces L extent forward of the braces or stirrups *e*, and have a yielding or hinged connection with the cross-piece D, by a bolt and slot at *f*, or otherwise, so that the rollers or wheels may rise and fall in passing over the usual inequalities of the ground without disturbing the runners or shoes. This constitutes mainly the frame-work, which is simple,
281 cheap, strong, and efficient, and possessing the property of allowing that part in front of the joint and that part in rear of it to accommodate themselves independently of each other to the natural roughness of the ground, whilst at the same time the operator, by means of the levers L L and their connections, can raise up, lower, carry, support, or adjust one of the frames upon the other at pleasure, as follows: The hinge-joint at *d* admits of the runners A being raised up out of the ground to pass any obstacle, but particularly facilitates

the turning around of the machine at the ends of the furrows; for unless then raised up, it would strain the machine very much, as the heels of the runners are sunk several inches in the ground, and offer considerable resistance in turning. In thus raising up the seeding part of the machine or the runners, the tongue E, the point of which is attached to the necks of the horses, is one fixed point, and the wheels K are the other fixed or supporting points; so that by using the lever M the shoes are raised up and suspended (if necessary) on these fixed points. It is immaterial whereabouts between these fixed or bearing points the hinge-joint is located, so that the runners are suspended, carried, or controlled by the point of the tongue and the wheels K, through the hinge-
282 joint and the lever connections between them.

Having thus fully described the nature and object of my invention, what I claim under this patent is: in combination with a seed-planting machine, constructed principally of frame-work, with not less than two runners, and not less than two wheels, a hinged-joint between the point of the tongue and the rear part of the machine, so that one part of the frame-work may be raised, lowered, adjusted, or supported on *on* the other part, substantially as described.

GEORGE W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

Ex'd. A. T.

283 C. of 531. 19–131.

Division of re-issues.

No. 1038.] * *

George W. Brown, of Galesburg, county of Knox, State of Illinois.

Seed-planters.

Rec'd August 6, 1860.
Petition, " " "
Affidavit, " " "
Specification, " " "
3 drawings, " " "
Model. Old patent with re-issue file.
Cre't dep.
1. Cash, $30, August 6, 1860.
Examined by Jenckes, Aug. 29, '60.
2. Issue. Shugert, Aug. 31, 1860.
4. Patented Feb. 2, 1853.
Re-issued Feb. 16, 1858.
Re-issued Sept. 11, 1860.
Recorded vol. , page 429.
S.
A. B. Stoughton, W., D. C.

(Endorsed:) Improvement in seed-planters.

284 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the re-issued letters-patent granted Geo. W. Brown Dec. 11th, 1860, No. 1092.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed this nineteenth day of October, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States the ninetieth.

[SEAL.] T. C. THEAKER.

285 *Re-issue No.* 1092.

The United States of America to all to whom these letters-patent shall come:

Whereas George W. Brown, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, (for which letters-patent were issued to him dated May 8th, 1855; the same surrendered, and new letters issued to him dated Nov. 10th, 1857; which last letters having been surrendered by him, the same have been cancelled, and separate letters ordered to issue to him on five amended specifications,) which, he states, has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improve-
286 ment, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George W. Brown, his heirs, administrators, or assigns, for the term of fourteen years from the eighth day of May, one thousand eight hundred and fifty-five, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George W. Brown in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand, at the city of Washington, this eleventh day of December, in the year of our Lord one thousand eight hundred and sixty, and of the Independence of the United States of America the eighty-fifth.

JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.

[L. S.] PHILIP F. THOMAS,
Commissioner of Patents.

287 The schedule referred to in these letters, and making part of the same.

To all whom it may concern:

Be it known that I, George W. Brown, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Fig. 1 represents a perspective view of the machine complete;

Fig. 2 represents a top plan of the seed-hoppers and valves, and the frame-work supporting them;

Fig. 3 represents a vertical section taken transversely through the seed-hoppers, valves, and runners, or shoes, and showing the device for operating the valves; also representing parts of the frame-work for sup'orting them, as well as the marker;

Fig. 4 represents a side elevation of one of the runners;

288 Fig. 5 represents the lock or block for defining or adjusting the descent of the rear part of the frame.

Similar letters of reference, where they occur in the several figures, denote corresponding parts of the machine in all the drawings.

To give the operator or conductor of a seed-planting machine full control of the machine whilst he rides upon it, involves the necessity of a peculiar arrangement of seat in relation to the axle, or the driving, supporting, or covering wheels, in which the axle is supported, so that the seat may be used as a lever, the occupant of it simply shifting his person or his weight, and thus, making a fulcrum of the axle or the wheels that support it, may raise or lower the seeding-apparatus, or force it into the ground, as may be required.

This is the object of this part of my invention, and my invention consists, in connection with a seed-planting machine that has its seeding-devices forward of the driver's position and forward of the axle, the locating of the seat in such relation to the axle of the supporting-

289 wheels as that the occupant of said seat may, be moving himself, or throwing his weight forward or backward on the seat, and, without leaving it, force the seeding-apparatus into, or raise or lower it from, the ground, as he may desire, or as the nature of the work may require.

To enable others skilled in the art to make and use my invention I will proceed to describe the same with reference to the drawings.

A A represents a pair of runners or shoes, upon which the seed-hoppers, B B, are mounted, and which, together with other cross-pieces extending from shoe to shoe, form a frame to which the tongue D is united.

F F are a pair of wheels supported by journals or axles in the frame-piece I I, &c., that are all united to a cross-piece, G, at the rear, and another cross-piece, G, which is in, at, or near the line of the bearings or journals of the wheels F. These pieces form also a second frame, which is pivoted to the front frame at the points *f f*. The outer pieces I pass over, respectively, a lock, block, or stop, *h*, on the front frame, and are so arranged as to prevent the rear of the frame from de-

290 scending so low as to strike the ground or incommode the driver or occupant of the seat. *g g* are adjustable purchase-blocks on the inside levers I I, as seen at Fig. 5, which take under the cross-bar, J, of the front frame and define or adjust the extent to which said front frame may be raised or lowered. The pieces I I serve as levers by which the occupant of the seat H, by his weight or his position, or both, can raise up, let, or force down the seeding apparatus, shoes, or seed-ducts, as may be required for turning the machine around or for deeper or less deep planting.

The seat, H, is secured to the frame-pieces, G G, and it extends back of the line of the axles of the wheels or centres of the wheels, so that the occupant of the seat may use it as a lever to raise up the front frame-work and seeding-devices, as above-mentioned, by shifting his weight or moving his person thereon. Should the axle extend clear across

from wheel to wheel it would then occupy the place of the front cross-piece G, and the axle could then become the support of the seat, H.

291 The seeding-apparatus herein represented operates as follows: The shoes, A, form a gash or furrow in the ground and the seed-ducts are close in rear of them. The valves, *a a*, are united by a cross-bar, *b*, to which a lever, *c*, is attached, said lever being in convenient position for the operator to grasp and move from his seat on the machine. Instead of the grains dropping directly from the seed-slides or valves, *a a*, in the hopper, into the gash or furrow, or at one fall, there may be a second set of valves, *e e*, Fig. 3, extending down into the seed-ducts, *d d*, which catch the grains that drop from the hoppers and allow those just previously dropped and caught by them to fall into the furrows, the object of this being to let the seed have as little space to drop from as possible, because, whilst they are falling, the machine is moving along over the field, and, without the lower valves, would dribble the grains along instead of leave' them in straight rows or hills so as to be easily cultivated afterwards.

K is an indicator or marker which directs the operator, in moving the lever *c*. As soon as the marker points over the previously-

292 planted hill or furrow, the lever is moved, which drops the charge of seed in exact line with the others previously dropped, and thus perfect uniformity and directness of rows or hills are preserved.

Having thus fully described the nature of this part of my invention, what I claim under this patent is: In combination with a seed-planting machine, operated by hand and having its seeding-devices forward of the centre of the wheels and forward of the driver's seat and a hinged connection, the locating of the seat in such relation to a line drawn through the centres of the wheels or ground-supports as that the occupant of said seat may, by moving himself or throwing his weight forward or backward on his seat, without the necessity of rising, walking, or standing over or near the seeding-devices, force the seeding-apparatus into or raise it from the ground, substantially as described.

GEO. W. BROWN.

Witnesses:
A. B. STOUGHTON.
E. COHEN.

293 PAT.-OFF., *Nov.* 9, 1860.

B.

SIR: Your application for a re-issue of the patent granted you May 8, 1855, for imp't in seed planters, and re-issue Nov. 10, 1857, has been examined and rejected; view of the patent granted D. H. Phillips March 20, 1855, and the rejected application of E. P. Farley June 27, 1853.

GEORGE W. BROWN, Esq'r,
(Care A. B. Stoughton, Esq.,)
Washington, D. C.

Jenkes.

WASHINGTON, *Nov.* 16, 1860.

Hon. P. F. THOMAS,
Comm'r of Patents.

SIR: I have to request that the subjoined amendments may be made to the spec'f'n of "Division B" of Geo. W. Brown's re-issue application.

Resp't'y,

A. B. STOUGHTON, *Att'y.*

294 PAGE 2. Amend "Division B" of Geo. W. Brown's spec'f', as follows:

Line 10. After "machine" insert "that has its seeding-devices forward of the driver's position and forward of the axle." Same line substitute "the" for "a."

Line 11. Erase the words "or stand."

Line 14. After seat insert "and without leaving it."

PAGE 5. At the end of line 3 insert "operated by hand and having its seeding-devices forward of the centre of the wheels and forward of the driver's seat and a hinged connection."

Line 4. Substitute "the" for "a" and erase the words "or stand."

Line 8. After the word "backward" insert "on his seat without the necessity of rising, walking, or standing over or near the seeding-devices."

A. B. STOUGHTON.

16 NOV., 1860.

(Endorsed:) Inventor's letters. Filed Nov. 16, 1'60. J. W. L. Improvement. Filed Nov. 16, 1'60.

295 Revision No. 373.

UNITED STATES PATENT-OFFICE,
Washington, Nov. 30, 1860.

SIR: Having examined the application of G. W. Brown, re-issue B, for improvement in seed-planters, we approve the action of the examiner having charge of the case, and recommend that a patent be allowed accordingly.

Respectfully submitted,

W'M B. TAYLOR,
T. R. PEALE,
Revising Examiners.

Hon. P. F. THOMAS,
Commissioner of Patents.

U. S. PATENT-OFFICE, *Nov.* 30, 1860.

The above report is approved and a patent allowed.

PHILIP F. THOMAS,
Commissioner.

(Endorsed:) No. 373. Approval.

296 No. 1092) Division. Re-issue B.

No. 373. Geo. W. Brown, of Galesburg, county of , State of Illinois,
Seed-planters.
Rec'd Oct. 13, 1860.
Petition. " " "
Affidavit. " " "
Specification. " " "
2. Drawing. " " "
Old patent with re-issue.
Cert. dep.
Cash, $30. Oct. 13, 1'60.
Examined. J. W. Shugert. Nov. 28, 1'60.

2. Issue. Shugert. Dec. 1, 1860.
4. Patented May 8, 1855.
Re-issued Nov. 10, 1857; again re-issued Dec. 11, 1860.
Recorded, vol. 9, page 61.
S.
A. B. Stoughton, Was., D. C.
Rejected Nov. 9. 1860.
Specification to me.
Nov. 10, 1'60.
Stoughton.
(Indorsed:) Improvement in seed-planters. Revised & approved Nov. 30, 1'60.

297 No. 2192. Whole No. 33196.

The United States of America to all to whom these letters-patent shall come:

Whereas G. D. Haworth, of Decatur, Illinois, has alledged that he has invented new and useful improvements in corn-planters, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are, therefore, to grant, according to law, to the said G. D. Haworth, his heirs, administrators, or assigns, for the term of seventeen years, from the third day of September, one thousand eight hundred and sixty-one, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said G. D. Haworth, in the schedule hereunto annexed, and is made a part of these
298 presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand at the city of Washington, this third day of September, in the year of our Lord one thousand eight hundred and sixty-one, and of the Independence of the United States of America the eighty-sixth.

CALEB B. SMITH,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office,
[SEAL.] D. P. HOLLOWAY,
Commissioner of Patents.

U. S. PATENT-OFFICE.

No. 2192 1861. Whole No. 33196

CORN-PLANTERS.

G. D. HAWORTH, of Decatur, Ill.

Letters-patent No. 2192, dated September 3, 1861.

Specification.

To all whom it may concern:

Be it known that I, G. D. Haworth, of Decatur, in the county of Macon, and State of Illinois, have invented a new and improved corn-planter; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings making a part of this specification, in which Figure 1 is a plan or top view of my invention, Figure 2 is a side sectional view of the
299 same, taken in the line *x x*, Figure 1.

Similar letters of reference indicate correspondent parts in both figures.

This invention consists in a novel and improved way of adjusting and graduating the depth of penetration of the furrow shares in the earth, whereby the driver may have complete control over said shares and readily adjust the same at any given depth in the earth, according to the depth the seed is required to be planted, and also readily elevate the shares above the surface of the ground, when required, as in moving or transporting the device from place to place.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it: A represents a rectangular frame, the back part of which is supported by two wheels, B B, which also serve as rollers; and C is a frame which is formed of two side-bars, *a a*, connected at their back ends by a cross-bar, *b*. The front ends of the side-bars *a a* are connected by hinges or joints, *c c*, to the front end of the frame A, and on the cross-bar *b*, near each end, there is attached a seed-box, D, the upper ends of which are connected by a board, *d*, that forms the dropper's seat. To the cross-bar *b*, at about its centre, there are secured two uprights, *e*, to which two bars, *f f*, are secured by pivots *g*. The bars *f f* extend backward, and rest upon the shoulders *h h* of a bar, E, the lower end of which is connected by a joint, *i*, to a longitudinal centre bar, *j*, of frame A. The bar E extends upward between the
300 bars *f f*, and on the back part of the latter the driver's seat, F, is placed, the bar E, being before it. By this arrangement it will be seen that the weight of the driver on his seat, F, is made to serve as a counterpoise for the frame *c*, the shoulders *h h* of bar E being the fulcrum of the bars or levers *f f;* and it will also be seen that by adjusting bar E, the fulcrum of the bars or levers *f f* may be changed in position as desired, so that the weight of the driver may be made to act in a greater or less degree on frame *c* as desired. The bottoms *j j* of the seed-boxes D D are each perforated with a curved slot *k*, and underneath each bottom, *j*, there is placed a plate, F, through which a pivot, *l*, passes; said plate being perforated to form seed-cells, *m m*, which work underneath the centre cross-bar *n* in the slots *k*. The outer end of the plates F are connected by a rod, G, into which the lower end of a lever, H, fits, said lever extending up through the front part of the dropper's seat *d*.

To the under side of the bars *a a* there are attached furrow-shares, I, the back parts of which are secured to seed-tubes, J, through which the seed is discharged into furrows. The seed-distributing apparatus may be arranged in any suitable way, any of the kinds which are operated by a vibrating lever being employed. The driver may readily shift or change the position of the bar E with his hand and at the same time change the fulcrum of the bars *f f* so as to regulate the depth of the
301 penetration of the furrow-shares, as circumstances may require.

Having thus described my invention, what I claim as new, and desire to secure by letters-patents, is the combination and arrangements, as herein shown and described, of the frame *c* with the bars or levers *f f*, driver's seat, F, and the adjustable bar E, for the purpose specified.

G. D. HAWORTH.

Witnesses:
J. W. HAWORTH,
M. HAWORTH.

302 No. 35721.

The United States of America to all to whom these letters patent shall come:

Whereas Ives W. McGaffey, of Chicago, Illinois, has alleged that he has invented a new and useful improvement in seed-planters, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into *to* Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose.

These are, therefore, to grant, according to law, to the said Ives W. McGaffey, his heirs, administrators, or assigns, for the term of seventeen years, from the first day of July, one thousand eight hundred and sixty-two, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Ives W. McGaffey, in the schedule hereunto annexed, and is made a part of these presents.

303 In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand at the city of Washington, this first day of July, in the year of our Lord one thousand eight hundred and sixty-two, and of the Independence of the United States of America, the eighty-sixth.

CALEB B. SMITH,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patents and making part of the same.

To all whom it may concern:

Be it known that I, Ives W. McGaffey, of the city of Chicago, county of Cook, and State of Illinois, have invented new and useful improvements in seed-planters, and I do hereby declare that the following is a clear and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon, in which—

Fig. 1 is a plan *on* top view showing the relative position of the different parts;

Figure 2 is a side elevation;

Figure 3 is a transverse sectional view of compound seed-distributing cylinder;

304 Figure 4 is an end view of the same, showing its elevation to the seed-box;

Figure 5 is a sectional view of the movable friction-wheel T, showing its connection with the hand-lever;

Figure 6 is a prospective view showing the general combination.

The machinery consists of a frame, A A, made in two parts and hinged together by collars G G, which are fast on the rear part of the frame, and work on sleeve-boxes which are fast on the front part of the frame. Through these sleeve-boxes passes a shaft, E, on which fixed the seed-distributing cylinders H and I. Over these cylinders are fitted the seed-boxes J J; beneath them is fixed the plow or runner M, for opening a furrow and conducting the seed from the cylinder to the ground.

The rear part of the frame rests on shaft *c*, which is fast in the driving-wheels B B, and turns with them. From this shaft motion is communicated to the front shaft E, by the cross-shaft D, which has a common bevel-gear at the front end, and at the rear end an adjustible friction gear. Upon shaft *c* is a disk-wheel, *s*, with a plain or ribbed face standing at right angles to its axis. This disk is pressed against the periphery of a friction-wheel, T, which is composed of an elastic ring of rubber, or other compound, fixed between two collars, properly recessed and held together by screws. To the hub of the wheel T is at-

305 tached a shipper, *v*, which is connected with lever V. This is fixed against a segment of a circle or dial, Y, upon which is a series of notches for the lever to catch into, so that it may be set at any desired point. By moving this lever V backwards or forwards the wheel T is moved to or from the axle of the friction-disk S, thereby changing the relative motion of the seed-distributing cylanders to the driving-wheels in a great or small degree, regardless of fixed ratios, thereby enabling the operator to control the motion of the seed-distributing cylinders, so as to drop the seed in hills any desired distance apart, (by moving the lever V,) without stopping the machine. This device enables the operator to keep the cylinders dropping in check or squares by compensating for any gain or loss of the driving-wheels by going over obstructions or uneven surfaces of ground.

Figures 3 and 4 show the compound cylinder and hub; in the periphery of this cylinder, two holes are drilled opposite to each other, the rim of which is thick enough for a cavity of sufficient depth to hold the required amount of seed for a hill. Into these holes plugs, *e e* are fitted loosely, the shank of which screws into the circular movable slide *a*. Upon this slide are projecting points (*c c*) which come in contact with cross-bar X, on the seed-boxes. As the cylinders revolve, the slide *a* is forced down so that the lower plug comes flush with the periphery of the cylinder, thereby ensuring the dislodgement of any grains

306 that might have a tendency to stick in the cavity; at the same time the plug on the upper side is depressed, forming a cavity in the cylinder for the seed to drop into.

The depth of these cavities can be adjusted by turning the plugs in or out. In the bottom of the seed-boxes is a little brush, *d*, which is set in close contact to the cylinders so as to brush off the seed in the cavities even with the surface of the cylinders allowing them to pass under just full. K is the operator's seat resting on the rear portion of the frame; L is a hand-lever connected by roller (N,) cam (O,) and strap P, to the front part of frame by bar Q; by drawing this lever back, the

front part of the machine is raised so that the plows or runners clear the ground, the end of the tongue being held at a fixed height by the team. The machine is held in this position by catching the lever L into a notch on brace R. Upon the end of front-shaft is a pointer, (*p*,) fast on the shaft E, so as to point down as the seed drops, thereby indicating to the operator the position of the hills.

OPERATION—The feild to be planted is first marked out one way, into requidistant spaces. The gears are thenso adjusted by moving the lever V, that (as the machine moves along) the pointer P shall strike the ground at intervals exactly corresponding with the distances between the spaces marked on the field. A mark or notch is then made on the scale Y, at the point where the lever rests, so that it may be readily set back to the same point again when it is moved out. The
307 machine is driven across these marks at right angles, the pointer being set so as to strike into the first and each succeeding mark as the machine passes over them, the seed being deposited at the same time on the mark.

The marks or notches on scale Y are made to correspond with the change that is effected in the distance between the hills, by moving the lever from one end to the other, so that when it is desired to change the distance between the hills one inch the lever V is moved back one inch, and in the same proportion from one-sixteenth of an inch to two feet. This minute adjustment is of vital importance in adjusting the machine to a given space, which is varied indefinitely by different farmers using different marking-machines in preparing their ground.

I do not claim changing the relative motion of two revolving-shafts by any gears or system of gears operating by fixed cogs, but what I do claim and desire to secure by letters-patent is—

First. The combination with a corn-planting machine of the disk S and friction-wheel T, arranged and operating substantially in the manner and for the purpose set forth.

Second. I do not claim broadly the shifting-plugs, but what I do claim is the combination of the cylinder H, shifting-plugs, (*e e*,) and slide
308 *a*, with projecting pins *c c*, and cross-bar X, constructed and operated as specified.

Third. I claim the combination of the flexible frame A A, the adjustible gear and its connections with the compound seed-distributing cylinders H, arranged and operated substantially as shown and described, for the purposes specified.

IVES W. McGAFFEY.

Witnesses:
F. H. BROWN.
HOWARD STRONG.

309 George I. Bergen, of Galesburgh, Ill. Letters-patent No. 40789; dated Dec. 1, 1863. Improvement in corn-planters.

To all whom it may concern:

Be it known that I, George I. Bergen, of the town of Galesburgh, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing which makes part of this specification, and in which—

Figure 1 represents my machine in perspective;
Figure 2 presents a longitudinal central elevation of the same;
Figure 3, a central cross-elevation of the planting mechanism;
Figure 4 represents in an enlarged view the indicating spring; and

Figure 5 the coupling.

My invention has relation to that class of seeding-machines which requires a driver and dropman to operate them effectively, and which consists of two frames coupled together, the one to carry the
310 seed-planting mechanism, and the dropman, and the other the driver of the team.

The leading objects of my improvements are to render the frame extremely flexible, so that it will work equally well in rough as in smooth ground; to balance the seed-planter with precision, independent of the relation between the weight of the driver and dropman; to establish such a relation between the seats of the driver and dropman that the driver can control the depth of planting by a change of his position; to so seat the dropman that he can change his position at will, and better regulate the work of the machine; to give the dropman notice when the seed drops, to avoid skipping in planting; to form the colter so that it must cut without clogging, or ride over rigid obstacles in its path without being stopped by them; to keep the seed-tubes from clogging, and plant the seed without bruising or breaking, always longitudinally in the furrows; to place the carrying-wheels of the rear frame so that they shall act as covering-wheels; to force the seed to the ground through any number of planting tubes by a single movement
311 of the dropman; and to render the width of the machine, or the distance between the planting tubes, adjustable, that it may be adapted to any desired width of planting.

And my invention consists—

First. In connecting the front and rear frames by slotted joints that shall admit a sufficient vertical movement to either frame, to render the machine flexible enough to permit either tube or wheel to enter a dead furrow, or pass over lumps or clods without materially changing the position of the other tube or wheel.

Second. The balancing of the front and rear frames by means of a windlass attached to both, so as to render the balance accurate, independent of the relative weights of the driver and dropman, and so that by turning the windlass the driver can regulate the depth of planting, or elevate the seed-tubes entirely above the ground.

Third. In combining the dropman' and the driver's seats in such relation to each other that a change of position on the part of the driver will enable him to control the depth of planting.

Fourth. In placing the dropman on a revolving seat to give
312 him more perfect command of the machine, and to enable him to change his position with facility.

Fifth. In the employment of a windlass-bar to balance the front and rear frames of a seeding-machine, control the depth of planting, and regulate the weight of the tongue upon the beam.

Sixth. In uniting the windlass to either frame by a spirally-wound chain or its equivalent, to vary the leverage of the driver's seat.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my seed-planter in two parts, consisting of two frames of equal width and suitable strength, coupled together. The front frame, A A, supports the tongue *a*, the seeding mechanism, and the dropman's seat, *b;* the rear frame, B B, carries the windlass, *c*, the driver's seat, *d*, and the adjustable axles, *e* and *e*, for the supporting wheels, *f* and *f'*. These frames are coupled together by a slotted joint at each side of the frames, to permit either frame to have a varying vertical move-
312½ ment, without changing the position of the seed-tubes or varying

the depth of planting. This coupling-joint consists of two jaws, one shown at 1, in Fig. 2, extending back from each side-bar, A A, of the front frame; and the jaws are connected by cross-bolts as at 1, Fig. 2, of sufficient strength to draw the rear frame. From the upper and lower sides, 2 and 3, of Fig. 2, of the forward ends of the rear frame-pieces, B B, two jaws project a sufficient distance to pass beyond the pins, 1, in the jaws of the front frame, and to receive a coupling-bolt, 4, through jaws 2 and 3; the lower one of these jaws, 3, being curved or bent so as to give the proper play or the required range of motion between the frames, and to permit the wheels, or either one of them, to pass over rough ground, without lifting or depressing the front frame. The windlass bar, *e*, is secured to the rear frame by straps, or sockets, fastened to the axle-bar, *g*, and cross-bar, *h*, but so loosely as to leave it free to turn in the straps or sockets; the rear end of the windlass-bar has a handled lever, *i*, that rises from it perpendicularly in front of the driver's seat, and within his reach; this lever-handle has a
313 sufficient curve to give it a tendency to spring towards the front of the driver's seat, and into the teeth of a ratchet-bar, *j*, secured thereto, which keeps it at any desired position; the front end of the windlass-bar, *c*, passes directly over the cross-plank, *k*, of the front frame, and is fastened thereto by a chain, *l*, one end of the chain being fastened to the cross-plank, and the other end winding spirally on the bar, *c*, is fastened thereto by a bolt or pin situated some distance back of the fastening to the cross-plank. The chain is so attached to the bar and frame as nearly to balance the weight of the front frame and dropman with the tongue, so as to carry the weight of the front frame and tongue off of the neck of the team. It will thus be readily perceived that, by turning the windlass-bar so as to wind up the chain, the leverage of the windlass lengthens, so as to require a heavier driver, or the driver to move further back on his seat to raise the planter frame. It is obvious that the driver's weight alone may be made to balance the dropman, front frame, and tongue, by winding the chain tight
314 upon the windlass, for this renders the connection between the front and rear frame rigid. Again, after the windlass is set to balance the weight of any driver, dropman, and the machine, it is obvious that, to plant deeper, the windlass must be turned further in the same direction, and to plant less deep it must be turned in the opposite direction. When at the end of a row, the dropman leaves the seat, and the front frame, now relieved of his weight, rises from the ground from being overbalanced by the weight of the driver, exerted through the leverage of the windlass-bar, the front frame only rises as far as permitted by the coupling-joint, so that the driver is not incommoded in turning the machine to plant the new rows. Of course, the operation is the same in going to & from the field. The relation between the rotating-seat of the dropman and the sliding-seat of the driver, as here combined and arranged, enables the driver, through the operation of the windlass-bar to govern the depth of planting. He can, of course, alter the depth of planting by changing his position on the driver's seat.

315 The dropman's seat is supported by a standard, *m*, secured centrally to the bottom of the cross-plank, K, and is pivoted to the top of the standard so as to turn freely thereon, and sufficiently elevated to enable the dropman to see the check-rows. It is thus apparent that the arrangement of the dropman's seat in this manner enables him to turn to either side with ease, to watch the operation of the machine, and to leave his seat on either hand with equal convenience.

As a means of securing more accurate planting, I desire to give the dropman positive notice when the retaining spring has delivered its seed, and this I effect by employing an indicating spring, that the dropman may hear the seed as they fall upon it from the hopper. The tube *n* may be made of any sheet-metal of suitable strength, or they may be cast solid, and with a flange at their upper edge, by which they can be securely bolted to the bottom of cross-plank, K. They may be made about one foot in length and have an internal opening about one
316 and a quarter inch' wide by about four inches or more in length.

The edges of these tubes next the colter are so formed as to retain the colter in place, and directly in front of the plunger. To one of the sides of these tubes I attach a thin steel-plate spring, about four inches wide and about ten inches in length. The bottom of each spring is curved, as shown in Fig. 4, and this curve is sustained by two thin ribs, that are made straight on their upper surfaces, to be smoothly acted upon by the plungers *b b*. As the plunger descends it strikes the plain surfaces of the ribs, & pushes the spring to the opposite side of the tube. The seed, which had lain between the ribs on the spring, are thus discharged from the tube in advance of the plunger, and are pressed down on the ground in a straight direction with the furrow, and so as to cover about four inches of its surface; as the plunger is withdrawn the spring resumes its normal position, and the plunger rising gradually upon the ribs prevent' it from striking a blow against the side of the tube, whilst the dropping of the seed from the hopper upon the spring can be
317 distinctly heard by the dropman, and he is thus enabled to determine by his ear when the planting mechanism is doing its duty properly.

To open the furrow I employ a colter of novel construction. A piece of sheet-steel having been cut or forged to a concave edge on its under side, is securely attached to the front edge of the seed-tube, and is made to project forward, with a gradual taper, to a distance little in advance of, and about opposite to the front of, the frame, to which it is fastened by a suitable brace, *p*. The colters on each side of the frame must be parallel to each other, and situated directly in line and in front of the plungers of the seed-tubes, and they must project below the seed-tubes as far as necessary to let the plungers pass slightly beyond the mouth of the seed-tubes.

The front end of the colter is placed high enough above the ground to pass clear of ordinary obstructions, and it will thus be perceived that from its peculiar curvature and support, it must easily pass over or cut through all the objects or any obstructions that are in its path.

318 For the double purpose of ensuring the delivery of the seed to and in line with the furrow, and prevent all possibility of clogging the tubes, I employ plungers within the seed-tubes and operate them, by the hand of the dropman, through a mechanism that shall depress and raise both plungers simultaneously, and at the same time close the hopper against the delivery of any seed whilst the plungers are on their downward motion. In tubes of the size before described the plunger should be about four inches wide, and about three-eighths of an inch thick, to move with ease within the tubes, and on the side opposite the indicating-spring a spring-rod connects the plunger with the slotted working-beam *q* by a hinged joint, or a coupling-strap, *y*, may form this connection.

The cross-plank K of the front frame carries on each side of the tongue an adjustable sliding-plank *z* and *z*, which supports the seeding mechanism, consisting of the hoppers *u u*, the sustaining-posts 8, 9, 10,

and 11, the slotted working-beams *q q*, the slide-beam *s*, the guide-plates 12 and 13, and the seed-distributers *t t*, with their moving fingers
319 *v* and *v*.

Holes through the plank *z z* permit the escape of the seed from the hoppers when the openings in the distributors are brought opposite the openings into the seed-tubes. The slide-beam *s*, having handles, 14 and 15, moves easily on top of posts 9 and 10, and is vibrated by the dropman to move the plungers and distributors. On each side of the beam S, and near each end, are plates *v* and *v*, secured by bolts passing through holes in the beam. By increasing the number of holes in the beam these plates can be adjusted as desired. The plates *v* and *v* extend down outside of the beam *s*, and a bolt passes through them transversely, between the guide-bars 12 and 13, and through the slot of the working-beams *q* and *q*; the plates *v* and *v*, in front of the beam *s*, pass down in the form of a finger to move longitudinally in the recesses in the seed-distributors.

The inner ends of the working-beams *q* & *q* are confined between the guide-bars by pins, on which they vibrate, whilst at the other end they are, as before described, attached to rods that move the plungers, 6 and 6.

320 The movement of the slide-beam *s* through the fingers *v* and *v*, moves the distributors so as to let the quantity of seed pass into the tubes that is to be planted at each vibration of the beam *s*. After passing the distributors the seed enters the tubes and rests on the indicating-springs between the ribs, which retain the seed until the reverse movement of slide-beam *s* causes the working-beams to push the plungers quickly down on the ribs of the spring, throws it back to the opposite side of the tube, and drops the seed upon the ground lengthwise in the furrow, where they are lightly pressed by the plungers, which have now passed the lower ends of the seed-tubes, and removed all matters that might tend to clog them.

The distributors remain unmoved to prevent the passing of any more seed into the tubes whilst the plungers are raised, and the further movement of the beam *s*, by the dropman, raises the plunger quickly and places the distributors in position again to pass the quantity of seed desired, and permits the indicating-spring to return quickly against
321 the sides of the tubes, and receive and retain the seed until the next descent of the plungers.

The distributors pass under a bridge or cut-off in the bottom of the hoppers that permits but a limited quantity of seed to pass into a hole in the distributor.

The lower side of the bridge may be lined with rubber or other flexible material, to strike back all the seed, save that required to just fill the holes in the distributors, which vibrate in the hoppers so as to bring one hole at each move under each bridge and drop the seed it contains on the retaining spring. Thus, it will be perceived, that all these results are effected by a single movement of the slide-bar *s* by the dropman.

In the most approved seed-planters it is found best to employ covering-wheels, and I have so placed my carrying-wheels for the rear frame, that they shall perform the function of covering-wheels, whatever change in the width of planting may be adopted; and this I effect by placing the carrying-wheels of the rear frame so that they shall always travel upon the centre of the furrow made by the colter by using
322 adjustable axles *e* and *e*, on the axle-bar of the rear frame, and it is obvious that this arrangement dispenses with the necessity of

using auxiliary or independent covering-wheels in all planters for planting but two rows at a time.

It is obvious that, to apply my improvements to a seed-planter that shall plant many rows at a time, it is only necessary to augment the numbers of the colters, hoppers, distributors, seed-tubes, and plungers, and add the requisite independent covering-rollers to make it effective as a drill-machine for sowing small grain; for a single movement of the beam *s* by the dropman will simultaneously move a large number of distributors & plungers, so as to close the hopper of each tube and deposit the seed from all the tubes used with nearly equal facility as in the two-row machine.

To render my planter capable of planting rows of various widths I have so constructed it as to move the colters and seed-tubes of the front frame and the carrying-wheels of the rear frame, nearer to each other or further apart.

To the ends of the axle-bar *g* of the rear frame I attach, by
323 straps or any suitable fastening, the axles *e* and *e*, and it will readily be perceived that by loosening the straps or fastenings, the axles may be brought nearer together or placed further apart and again fastened at the width required.

To contract the width between the planting-tubes, the front colter-braces must be moved nearer together and fastened in the new position at the width desired, and the planks *z* & *z* must be removed and reduced in length so as to correspond with the width between the colters. These changes with the required change of position for the fingers *v* and *v*, will be all that will be necessary to adjust the width of the two frames to plant at a different width from that shown in the drawings, and render the machine capable of being used with equal effect at any desired width.

The rear frame carries a driver's seat, capable of being shifted forward and back, at pleasure, to change the balance of the machine by shifting the weight of the driver from one point to another. This
324 seat may be placed on a box, supported on the frame, as shown in the drawing, and the box may be rendered useful as a tool-chest or for other purposes.

What I claim as my invention and desire to secure by letters-patent of the United States, is, 1st. The combination is a seed-planter of a front frame, carrying the seeding mechanism and a dropman's seat, and a rear frame, carrying a coupling windlass and a driver's seat, with the slotted coupling, substantially as described, for the purposes set forth.

2nd. Balancing the front and rear frames of a seed-planter by windlass, substantially in the manner and for the purpose set forth.

3d. The windlass *c*, to balance the front and rear frames or control the depth of planting in a seeding-machine or to regulate the weight of the tongue upon the team, as set forth.

4th. The combination of the chain fastened to either frame with the windlass, and running spirally around it to vary the leverage, substantially as described and set forth.

325 5th. The revolving seat for the dropman combined with a seed-planter, constructed and operating as and for the purpose described.

6th. The combination of the dropman's seat with the driver's seat, with the windlass, substantially as described and for the purposes set forth.

7th. The indicating-spring, with its ribs, constructed and operating substantially as described.

8th. The slotted joint, connecting the front and rear frames, when the draft of the rear frame is effected alone by this coupling, and so as to allow a vertical movement of the front or rear frame, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

GEORGE I. BERGEN.

Witnesses:
I. GRANT.
F. P. SISSON.

326 *Re-issue No.* 1935.

The United States of America to all to whom these letters-patent shall come:

Whereas George I. Bergen, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in corn-planters, (for which letters-patent were issued to him, dated December 1, 1863; which letters having been surrendered by him, the same have been cancelled, and new letters ordered to issueto him on an amended specification,) which he states has not been known or used before his application has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement; and that the same hath not, to the best of his knowledge and belief, been previously known or used, has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose: These are, therefore, to grant, according to law, to the said George I. Bergen, his heirs, administrators, or assigns, for the term of seventeen years from the first day of December, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said improvement, a description whereof is given, in the words of the said George I. Bergen, in the schedule hereunto annexed, and is made a part ot these presents.

327 In testimony whereof I have caused these letters to be made patent and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this eighteenth day of April, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States of America the eighty-ninth.

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.]
D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that, I, George I. Bergen, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in seed-planters, of which the following is a full, clear, and

exact description, reference being had to the accompanying drawings, which makes part of this specification, and in which—

Fig. 1 represents my machine in prospective;

Fig. 2 presents a longitudinal central elevation of the same;

Fig. 3, a central cross-elevation of the planting-mechanism;

Fig. 4 represents in an enlarged view the indicating-spring; and Figure 5, the coupling.

My invention has relation to that class of seeding-machines which requires a driver and dropman to operate them effectively, and which consists of two frames, coupled together, the one to carry the
328 seed-planting mechanism and the dropman, and the other the driver of the team. The leading objects of my invention are to render the frame extremely flexible, so that it will work equally well in rough as in smooth ground; to balance the seed-planter with precision, independant of the relation between the weight of the driver and the dropman; to establish such a relation between the seats of the driver and dropman that the driver can control the depth of planting by a change in his position; to so seat the dropman that he can change his position at will, and better regulate the work of the machine; to give the dropman notice when the seed drops; to avoid skipping in planting; to form the coulter so that it must cut without clogging or ride over rigid obstacles in its path without being stopped by them; to keep the seed-tubes from clogging, and plant the seed without bruising or breaking, always longitudinally in the furrows; to place the carrying-wheels of the rear frame so that they shall act as covering-wheels; to force the seed to the ground through any number of planting-tubes by a single movement of the dropman, and to render the width of the machine or the distance between the planting-tubes adjustable, that it may be adopted to any desired width of planting. And my invention consists

First. In connecting the front and rear frames by slotted-joints that shall admit a sufficient vertical movement to either frame, to ren-
329 der the machine flexible enough to permit either tube or wheel to enter a dead furrow or pass over lumps or clods without materially changing the position of the other tube or wheel.

Second. The balancing of the front and rear frames by means of a windlass attached to both, so as to render the balance accurate, independant of the relative weights of the driver and dropman, and so that by turning the windlass the driver can regulate the depth of planting or elevate the seed-tubes entirely above the ground.

Third. In combining the driver's and dropman's seats in such relation to each other, that a change of position on the part of the driver will enable him to control the depth of planting.

Fourth. In placing the dropman on a revolving-seat to give him more perfect command of the machine, and to enable him to change his position with facility.

Fifth. In the employment of a windlass-bar to balance the front and rear frames of a seeding-machine, control the depth of planting, and regulate the weight of the tongue upon the beam.

Sixth. In uniting the windlass to either frame by a spirally-wound chain, or its equivalent, to vary the leverage of the driver's seat.

To enable others skilled in the art, to make and use my invention, I will proceed to describe its construction and operation:

I construct my seed-planter in two parts, consisting of two
330 frames, of equal width, and suitable strength, coupled together. The front-frame A A supports the tongue *a*, the seeding-mechanism, and the dropman's seat *b*. The rear-frame B B carries the windlass

c, the driver's seat *d*, and the adjustable axles *e* and *e* for the supporting wheels *f f*. These frames are coupled together by a slotted-joint, at each side of the frames, to permit either frame to have a varying vertical movement without changing the position of the seed-tubes, or varying the depth of the planting. This coupling-joint consists of two jaws, one shown at 1, in Figure 2, extending back from each side-bar A A of the front-frame, and the jaws are connected by cross-bolts at 1, Fig. 2, of sufficient strength, to draw the rear-frame. From the upper and lower sides 2 & 3 of Figure 2, of the forward-ends of the rear frame-pieces B B, two jaws project a sufficient distance to pass beyond the pins 1, in the jaws of the front-frame, and to recieve a coupling-bolt 4 through jaws 2 & 3, the lower one of these jaws, 3, being curved or bent so as to give the proper play, or the required range of motion, between the frames, and to permit the wheels, or either one of them, to pass over rough ground without lifting or depressing the front-frame. The windlass-bar *e* is secured to the rear-frame by straps or sockets, fastened to the axle-bars across bar *h*, but so loosely as to leave it free to turn in the straps or sockets; the rear-end of the windlass-bar has a handled-lever, *i*, that rises from it perpendicularly in front of the driver's seat, and within his reach. This lever-bar has a sufficient curve
331 to give it a tendency to spring towards the front of the driver's seat, and into the teeth of a ratchet-bar, *j*, secured there to keep it in any desired position. The front-end of the windlass-bar *c* passes directly over the cross-plank *k* of the front-frame, and is fastended thereto by a chain, *l*, one end of the chain being fastened to the cross-plank, and the other end, winding spirally on the bar *c*, is fastened thereto by a bolt or pin, situated some distance back of the fastening to the cross-plank. The chain is so attached to the bar and frame as to nearly balance the weight of the front-frame and dropman, with the tongue, so as to carry the weight of the front-frame and tongue off of the neck of the team. It will thus be readily perceived that, by turning the windlass-bar, so as to wind up the chain the leverage of the windlass lengthens so as to require a heavier driver, or the driver to move further back on his seat to raise the planter-frame. It is obvious that the driver's weight alone may be made to balance the dropman, front-frame, and tongue, by winding the chain tight upon the windlass, for this renders the connection between the front and rear frame rigid. Again, after the windlass is set to balance the weight of any driver, dropman, and the machine, it is obvious that, to plant the deeper, the windlass must be turned further in the same direction, and to plant less deep it must be turned in the opposite direction.

332 When at the end of a row the dropman leaves his seat, and the front-frame, now relieved of his weight, rises from the ground from being over-balanced by the weight of the driver exerted through the leverage of the windlass-bar, the front-frame only rises as far as permitted by the coupling-joint, so that the driver is not incommoded in turning the machine to plant the new rows. Of course, the operation is the same in going to and from the field.

The relation between the rotating-seat of the dropman and the sliding seat of the driver, as here combined and arranged, enables the driver, through the operation of the windlass-bar, to govern the depth of planting. He can, of course, alter the depth of planting by changing his position on the driver's seat. The dropman's seat is supported by a standard, *m*, secured centrally to the bottom of the cross-plank *k*, and is pivoted to the top of the standard so as to turn freely thereon, and sufficiently elevated to enable the dropman to see the check-rows. It is thus

apparent that the arrangement of the dropman's seat in this manner enables him to turn to either side with ease to watch the operation of the machine and to leave his seat on either hand with equal convenience. It is also apparent that, by locating the dropman's seat in the rear of the heel of the runners, as clearly shown in Fig. 2, his weight is thereby made to balance, to a greater or less extent, the weight of the
333 front-part of the front-frame and the tongue, the horizontal lower edge of the runners serving as a fulcrum for that purpose.

The tongue, front-frame, and dropman's seat, being rigidly united, form a simple lever, of which, as already described, the lower straight edge of the runner is the fulcrum, the weight of the dropman behind balancing the weight of the tongue and frame in front. By this means the tongue of the machine, while being rigidly attached to the frame, is prevented from resting upon, and bruising, or otherwise injuring the necks of the animals, which is an objection to most machines of this class, as ordinarily constructed.

As a means of securing more accurate planting, I desire to give the dropman positive notice when the retaining spring has delivered its seed, and this I effect by employing an indicating-spring that the dropman may hear the seed as they fall upon it from the hopper. The tubes *n* may be made of any sheet-metal of suitable strength, or they may be cast solid, and with a flange at their upper edge, by which they can be securely bolted to the bottom of the cross-plank *k*. They may be made about one foot in length, & have an internal opening of about one & a quarter inch by about four inches or more in length. The edges of these tubes next the coulters are so formed as to retain the colter in place and directly in front of the plunger. To one of the sides of these tubes I attach a thin steel-plate spring, about four inches wide and about ten inches in length. The bottom of each spring is curved,
334 as shown in Figure 4, and this curve is sustained by two thin ribs that are made straight on their upper surfaces to be smoothly acted upon by the plungers *b b*. As the plunger descends, it strikes the plain surfaces of the ribs, and pushes the spring to the opposite side of the tube. The seed which has lain between the ribs on the spring are thus discharged from the tube in advance of the plunger, and are pressed down on the ground in a straight direction with the furrow, and so as to cover about four inches of its surface. As the plunger is withdrawn the spring resumes its normal position, and the plunger rises gradually upon the ribs prevent it from striking a blow against the side of the tube, whilst the dropping of the seed from the hopper upon the spring can be distinctly heard by the dropman, and he is thus enabled to determine by his ear when the planting mechanism is doing its duty properly. To open the furrow I employ a coulter of novel construction. A piece of sheet-steel, having been cut or forged to a concave edge on its outer side, is securely attached to the front edge of the seed-tube, and is made to project forward with a gradual taper to a distance a little in advance of, and about opposite to the front of, the frame, to which it is fastened by a suitable brace, *p*. The colter' on each side of the frame must be parallel to each other, and situated directly in line, and
335 in front of the plungers of the seed-tubes, and they must project below the seed-tubes as far as necessary to let the plungers pass slightly beyond the mouth of the seed-tubes. The front end of the colter is placed high enough above the ground to pass clear of ordinary obstructions; and it will thus be perceived that, from its peculiar curvature and support, it must easily pass over or cut through all the objects or any obstructions that are in its path. For the double purpose

of ensuring the delivery of the seed to and in line with the furrow, and prevent all possibility of clogging the tubes, I employ plungers within the seed-tubes, and operate them by the hand of the dropman through a mechanism that shall depress and raise both plungers simultaneously, and at the same time close the hopper against the delivery of any seed whilst the plungers are on their downward motion. In tubes of the size before described, the plunger should be about four inches wide and about three-eighths of an inch thick, to move with ease within the tubes, and on the side opposite the indicating-spring. A spring-rod connects the plunger with the slotted working-beam *q* by a hinged joint, or a coupling-strap, *l*, may form this connection. The cross-plank *k*, of the front frame, carries on each side of the tongue an adjustable sliding-plank, *z* & *z*, which supports the sliding mechanism, consisting of the hopper *u u*, the sustaining-posts 8, 9, 10 & 11, the slotted working-beams *q q*,
336 the slide-beam *s*, the guide-plates 12 & 13, and the seed-distributers *t* & *t*, with their moving fingers *v* & *v*. Holes through the planks *z* & *z* permit the escape of the seed from the hoppers when the openings in the distributors are brought opposite the openings in the seed-tubes. The side-beam *s*, having handles 14 & 15, moves easily on top of the posts 9 & 10, and is vibrated by the dropman to move the plungers and distributors. On each side of the beam *s*, and near each end, are plates *v* & *v*, secured by bolts passing through holes in the beam. By increasing the number of holes in the beam these plates can be adjusted as desired. The plates *v* & *v* extend down outside of the beam *s*, and a bolt passes through them transversely between the guide-bars 12 & 13, and through the slot of the working-beams *q* & *q*. The plates *v* & *v* in front of the beam *s* pass down in the form of a finger to move longitudinally in the recesses in the seed-distributors. The inner ends of the working-beams *q* & *q* are confined between the guide-bars by pins on which they vibrate, whilst at the other end there are, as before described, attached to rods that move the plungers *b* & *b*. The movement of the slide-beam *s* through the fingers *v* & *v* moves the distributors so as to let the quan'ity of seed pass into the tubes that is to be planted at each vibration of the beam *s*. After passing the distributors, the seed enters the tubes and rests on the indicating-springs, between the ribs which retain the seed, until the reverse movement
337 of slide-beam *s* causes the working-beams to push the plungers quickly down on the ribs of the spring, throws it back to the opposite side of the tube, and drops the seed upon the ground lengthwise in the furrow, where they are lightly pressed by the plungers, which have now passed the lower ends of the seed-tubes and removed all matters that might tend to clog them. The distributors remain unmoved to prevent the passing of any more seed into the tubes, whilst the plungers are raised and the further movement of the beam *s* by the dropman raises the plunger quickly, and places the distributors in position again to pass the quan'ity of seed desired, and perhaps the indicating-spring to return quickly against the sides of the tubes, and receive and retain the seed until the next descent of the plungers. The distributors pass under a bridge or cut-off in the bottom of the hoppers that permits but a limited quan'ity of seed to pass into a hole in the distributor. The lower side of the bridge may be lined with rubber or other flexible material to strike back all the seed save that required to just fill the holes in the distributors, which vibrate in the hoppers, so as to bring one hole at each move under each bridge, and drop the seed it contains on the retaining spring. Thus it will be perceived that all these results are affected by a single movement of the slide-bar *s* by the dropman. In

the most approved seed-planters it is found best to employ cover-
338 ing-wheels, and I have so placed my carrying wheels for the rear frame that they shall perform the function of covering wheels, whatever change in the width of planting may be adopted; and this I effect by placing the carrying-wheels of the rear frame so that they shall always travel upon the centre of the furrows made by the colter by using adjustable axes *e* & *e* on the axle-bar of the rear frame; and it is obvious that this arrangement dispenses with the necessity of using auxiliary or independent covering-wheels in all planters for planting but two rows at a time. It is obvious that to apply my improvements to a seed-planter that shall plant many rows at a time, it is only necessary to increase the number of the colters, hoppers, distributers, seed-tubes, and plungers, and add the requisite independent covering-rollers, to make it effective as a drill-machine for sewing small grain; for a single movement of the beam *s* by the dropman will simultaneously move a large number of distributors and plungers so as to close the hopper of each tube, and deposite the seed from all the tubes with nearly equal facility as in the two-row machines. To render my planter capable of planting rows of various widths, I have so constructed it as to move the colters and seed-tubes of the front frame and the carrying-wheels of the rear frame nearer to each other, or further apart. To the ends of the
339 axle-bar *g* of the rear frame I attach by straps or any suitable fastening the axles *e* & *e*, and it will readily be perceived that, by loosening the straps or fastenings, the axles may be brought nearer together or placed further apart, and again fastened in the new position at the width required; and the planks *z z* must be removed and reduced in length so as to correspond with the width between the colters. These changes, with the required change of position for the fingers *v* and *v*, will be all that will be necessary to adjust the width of the two frames to plant at a different width from that shown in the drawings, and render the machine capable of being used with equal effect at any desired width.

The rear frame carries a driver's seat, capable of being shifted forward and back at pleasure, to change the balance of the machine by shifting the weight of the driver from one point to another. This seat may be placed on a box supported on a frame, as shown in the drawing, and the box may be rendered useful as a tool-chest, or for other purposes. What I claim as my invention and desire to secure by letters-patent of the United States is: 1st. The combination in a seed-planter of a front frame, carrying the seeding-machanism and a dropman's seat, and a rear
340 frame, carrying a coupling-windlass and a driver's seat, with the slotted coupling, substantially as described, for the purposes set forth. 2nd. Balancing the front and rear frames of a seed-planter by a windlass, substantially in the manner and for the purposes set forth. 3rd. The windlass C to balance the front and rear frames, or control the depth of planting in a seeding-machine, or to regulate the weight of the tongue upon the team, as set forth. 4th. The combination of the chain fastened to either frame with the windlass and running spirally around it to vary the leverage, substantially as described and set forth. 5th. The revolving-seat for the dropman, combined with a seed-planter, constructed and operating as and for the purpose described. 6th. The combination of the dropman's seat with the driver's seat and with the windlass, substantially as described and for the purposes set forth. 7th. The indicating-spring, with its ribs, constructed and operating substantially as described. 8th. The slotted joint connecting the front and rear frames, when the draught of the rear frame is effected by this coupling alone and

so as to allow a vertical movement of the front or rear frame, as, and for the purposes set forth. 9th. I claim locating the dropman's seat in the rear of the heel of the runners for the purposes of balancing the
341 weight of the front part of the frame and the tongue, as and for the purposes set forth.

10th. I claim operating the seed-slides by applying the power direct to the handle that moves the slide without the use or intervention of a lever as set forth.

GEORGE I. BERGEN.

Witnesses:
F. E. SHORT.
F. P. SISSON.

342 No. 37753.

The United States of America to all to whom these letters-patent shall come:

Whereas George D. Haworth, of Decatur, Illinois, has alledged that he has invented a new and useful improvement in seeding-machines, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said George D. Haworth, his heirs, administrators, or assigns, for the term of seventeen years from the twenty-fourth day of February, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George D. Haworth in the schedule hereunto annexed, and is made a part of these presents.

343 In testimony whereof I have caused these letters to be made patent and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this twenty-fourth day of February, in the year of our Lord one thousand eight hundred and sixty-three, and of the Independence of the United States of America the eighty-seventh.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned & sealed with the seal of the Patent-Office.
[SEAL.] D. P. HOLLOWAY,
Commissioner of Patents.

344 Schedule referred to in thes' letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, George D. Haworth, of Decatur, in the county of Macon, and State of Illinois, have invented a new and improved seed-

ing-machine, and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a side sectional view of my invention taken in the line *x x*, Figure 2;

Figure 2 is a plan or top view of the same.

Figure 3 a transverse section of a portion of the same taken in the line *y y*, (Fig. 2.)

Similar letters of reference indicate corresponding parts in the several figures.

The invention consists in the employment or use of scrapers applied to the machine and arranged in such a manner that the wheels on which the machine is mounted may be readily cleaned and the scrapers applied to the wheels only when necessary.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A represents what may be termed the main frame of the machine, which is composed of a bar, *a*, having a cross-bar, *b*, attached to its back part at right angles, and firmly secured in position by oblique bars or braces, *c c*. B is the axle which is secured to the bar *a* and braces *c c* in a position parallel with the cross-bar *b*. C C are wheels placed on the axle B, and D is the draught-pole which is attached to the front end of the bar *a*. To the front part of the bar *a* of the main frame A, there is secured at right angles a bar, *d*, which is firmly retained
345 in position by oblique braces *e e*. (See Figure 2.)

To each end of the bar *d* there is attached by a hinge or joint *f* a bar, E. These bars E extend back towards the wheels C C, parallel with each other and the bar *a*, and the back parts of the bars E are connected by a cross-bar, F. The bars E E and cross-bar F may be termed a supplemental frame, and it is allowed to swing freely from the cross-bar *d* of the frame A on account of the joints or hinges *f*. On the back part of each bar E there is placed a seed-hopper, G. These seed-hoppers have perforated bottoms, *g*; and underneath the bottoms *g* there are placed circular plates, H, which have each two small perforations, *h h*, in them, which are smaller than the perforations, *i*, in the bottoms *g* of the hoppers; there being also two perforations, *i*, in each seed-hopper. (See Figure 2.) The front ends of the plates H project beyond the front parts of the seed-hoppers, and they are connected by a bar, I, by operating which, with a reciprocating motion the seed is discharged from the hoppers. This arrangement, however, is not new, it having been previously used in the other seeding-machines. The seed is discharged from the hoppers G G into tubes, J J, which have open backs and are provided at their lower ends with furrow-shares, K. In front of each tube J and share K there is a rotary coulter, L. These coulters are constructed of circular pieces of metal, (steel would be the preferable material,) and their axes, *j*, are fitted in bearings, M, which are attached to the under sides of the bars E E. (See Figure 1.) The coulter, L are allowed to rotate freely and in contact with what I term nose-pieces, N, which are simply metal plates secured to the front ends of the shares K K; said nose-pieces projecting slightly below the bottoms of the shares K, and extending forward sufficiently far to be in contact with the inner surfaces
346 of the lower parts of the coulters, as shown in Figure 1.

By this arrrangement it will be seen that as the machine is drawn along, all obstructions, such as stalks and the like, will be prevented from being caught by the shares, for the nose-pieces N

completely close up the spaces between the lower parts of the coulters and the shares, and enable the latter to pass over all obstructions, whether cut through or divided by the coulters or not.

The difficulty, therefore, attending the gathering of weeds and trash around the tubes or standards of the furrow-shares is by this invention fully obviated.

O represents a sliding or reciprocating bar which is fitted in guides, K K, attached to the cross-bar *b*. This bar O has two scrapers, P P, attached to it, which are directly back of the wheels C C. The scrapers P P are much narrower than the wheels C C, as will be seen by referring to Figure 2, and the movement of the bar O is sufficient to admit of the scrapers passing over the entire surfaces of the wheels C. The bar O has an upright handle, Q, attached to it for the convenience of moving it. This handle projects upward within reach of the driver's seat R, which is attached to a frame, S, the front of the latter being secured by a joint, *l*, to uprights, *m*, on the cross-bar F of the supplemental frame to which the seed-hoppers are attached. This frame S is supported by a hinged bar, T, by adjusting which the shares and coulters may, when necessary, be elevated above the surface of the ground.

The dropper's seat U is attached to the lower part of the frame S. By this arrangement of the sliding bar O, with narrow scrapers, P, attached, it will be seen that the surfaces or treads of the
347 wheels C C may be cleaned at any time by simply moving the bar O so that the scrapers will pass over the surfaces or treads of the wheels; and when the scrapers are not in use they are not in contact with the wheels, the rod O being so adjusted that the scrapers will be at one side of them.

Having thus described my invention, what I claim as new and desire to secure by letters-patent is, the scrapers P P, when attached to a sliding bar, O, arranged as shown, to admit of the scrapers being passed laterally over the surfaces of the wheels C when necessary, and not be in contact with the latter when not desired for use, as herein set forth.

G. D. HAWORTH.

Witness:
J. W. HAWORTH.
MAHLON HAWORTH.

348 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters-patent granted James Selby, dated 30th August, 1864, No. 44019.

In testimony whereof, I, S. H. Hodges, Acting Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto affixed, this sixth day of October, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States the ninety-third.

[SEAL.]

S. H. HODGES,
Acting Commissioner.

349 The United States of America to all to whom these letters-patent shall come:

Whereas James Selby, of Peoria, Illinois, has alleged that he has invented a new and useful improved corn-planter, which he states has not

been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said invention, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said James Selby, his heirs, administrators, or assigns, for the term of seventeen years from the thirtieth day of August, one thousand eight hundred and sixty-
350 four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention, a description whereof is given in the words of the said James Selby, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed.

Given under my hand at the city of Washington, this thirtieth day of August, in the year of our Lord one thousand eight hundred and sixty-four, and of the Independence of the United States of America, the eighty-ninth.

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[L. S.] D. P. HOLLOWAY,
Commissioner of Patents.

351 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, James Selby, of the city and county of Peoria, and State of Illinois, have invented a new and improved corn-planter; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improved corn-planter, with a portion of the hopper removed to expose some of the parts located beneath;

Figure 2 is a sectional elevation of the same, with one of the wheels removed, the section being taken in the line *x x*;

Figure 3 is a rear view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists—

First. In an improved arrangement of devices for raising the
352 runners out of contact with the ground, to avoid obstacles or when the machine is not planting.

Second. In a novel manner of applying the pivot-frame upon which the hopper is mounted, and in peculiar devices for adjusting the same.

Third. In improved dropping mechanism.

Fourth. In a novel construction and arrangement of scrapers for removing dirt which may accumulate on the peripheries of the wheels.

In order that others skilled in the art to which my invention appertains, may be enabled to fully understand and use the same, I will pro-

ceed to describe its construction and operation: In the accompanying drawings A A may represent the wheels, A^1 the axle, B B, B^1, B^2, B^3, and C the tongue of the machine. To the resepective ends of the transverse-bar B^1, at the front of the machine are attached the runners D D, by means of pivots *d*. From the rear of the runners D, rise the conducting-tubes E, upon which rests the hopper F.

G represents the driver's seat. H H represents levers which are connected together at their rear end, so as to move simultaneously
353 by means of a transverse-bar, H^1, and pivoted at *h*, upon the axle A^1. To the front ends of the levers H H, are pivoted links h^1 h^2, which, at their opposite and upper ends, are pivoted to lugs f^3 f^3 projecting from the under side of the hopper F.

The levers H H are arranged respectively on each side of the driver's-seat, so that by bearing down thereupon with his feet the driver is enabled to elevate the hopper and consequently raise the cultivater-teeth to any desirable height from the ground.

The runners D D being pivoted to the transverse-bar B^1, and the hopper F, moving simultaneously with the runners D D and conducting-tubes E E, causes the movement of the whole to be performed in the arc of a circle, and it will be seen that the pivoting of the links *h h* at both ends is admirably adapted to facilitate the elevation of the runners by the depression of the levers H H.

Hitherto it has been the practice to arrange the pivoted frame to which the runners are attached in such manner that when the runners were to be elevated the frame would turn within or between
354 the main frame B B.

In my invention many of the appendages of this pivoted frame are dispensed with, the same being constituted by the hopper, the conducting-tubes, and the runners themselves.

The conducting-tubes and runners are arranged to work directly in front of the wheels of the machine, and are adapted respectively to move on the outside of the frame B B, when being turned up out of contact with the ground.

I I represents slotted plates projecting upward from the bars B B and secured thereto by means of set screws, *i i*, by means of which they may be securely adjusted in any position in which they may be placed, so as to retain the hopper F in proper position to cause the runners D D to penetrate to the depth at which it may be desired to have them work.

The upper ends of the plates I I are deflected in order to form suitable surfaces for the under side of the hopper to rest upon. In each of the seed-boxes F^1 F^1, are located stationery semi-circular plates *f f*, which constitute cutt-offs for the seed appertures f^1 f^1, in the slide F^2.
355 These cut-offs *f f* are placed in contra-position with each other, and it is evident that their peculiar construction adapts them to perform their function of separating the quantity of corn to be dropped at every reciprocation of the slide F^2, without in any manner injuring the same. It is apparent that the same remark may be applied with relation to the operation of the stirrers f^2 f^2, which stirrers are rigidly secured in and project upward from the slide F^2.

The stirrers f^2 moving forth and back between the cut-offs *f f*, keep the corn in motion, and prevent the same from packing, the rounded edges of the cut-offs *f* allowing the grains to slide from one position to another without danger of injury. The slide may be adapted for adjustment in any suitable manner in order to vary the capacity of the seed-apertures f^1 f^1.

O O represents scrapers secured on the respective ends of the trans-

verse-bar B^2 at the rear of the machine by means of pivots, *o o*, and provided at their rear ends with foot-rests, o^1 o^1, to enable the driver
356 from his seat G to press the scraper in contact with the peripheries of the wheels to remove any dirt which may adhere thereto.

O^1 O^1 represents slotted plates which may be secured in any position in which they may be placed by set-screws, o^2 o^2. These plates may be slidden outward and so adjusted in order retain the scrapers firmly in contact with the wheels, or said plates may be moved inward, so as to adapt the scrapers to hang loosely and be operated at intervals by the feet of the driver.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by letters-patent:

1st. I claim the links h^1 h^1, jointed at their respective ends to the pivoted frame D E F, and treadle H H, and operating in the manner described, to facilitate the elevation of said pivoted frame.

2nd. I claim the combination of the pivoted frame D E F, with the adjustable plates I I, for *guaging* the depth at which it is desired to have the runners work, substantially as set forth.

357 3rd. I claim the scrapers O O, in combination with the sliding plates O^1 O^1, constructing and operating in the manner & for the purpose explained.

JAMES SELBY.

Witnesses:
MICHAEL D. SPRUCK.
WESLEY RULEY.

Ex'd. A. T.

358 *No.* 3148—*Re-issue.*

The United States of America to all to whom these letters-patent shall come:

Whereas James Selby, of Peoria, Illinois, has alleged that he has invented a new and useful improvement in corn-planters, (for which letters-patent were issued to him, dated August 30, 1864; which letters having been surrendered by him, the same have been cancelled, and new letters ordered to issue to him on an amended specification;) and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, praying that a patent may be issued therefor:

These are, therefore, to grant to the said James Selby, his executors, administrators, or assigns, for the term of seventeen years from the thirtieth day of August, one thousand eight hundred and sixty-
359 four, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule, and made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this sixth day of October, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-third.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] S. H. HODGES,
Acting Commissioner of Patents.

360 UNITED STATES PATENT-OFFICE.

James Selby, of Peoria, Illinois. Letters-patent No. 44019, dated August 30, 1864; re-issue No. 3148, dated October 6, 1868. Improvement in corn-planters.

The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, James Selby, of the city and county of Peoria, and State of Illinois, have invented certain new and useful improvements in corn-planters; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which like letters indicate like parts wherever they occur.

Figure 1 is a top plan view;

Figure 2 is a side elevation; and

Figure 3 is a rear elevation of my improved machine.

It has hitherto been customary to construct this class of planters with a front and rear frame, hinged together at or near the rear part of the front frame. Instead of following this plan, I make a single frame,
361 consisting of two side-bars B, of the full length of the machine, and connect them at both front and rear by cross-bars B′, and mount it at about one-third its length from the rear end, on an axle, A″, supported on wheels A at its ends, as represented in Fig. 1.

Upon the rear part of this frame I locate a driver's seat, G, and to the ends of the cross-bars I pivot the nose of a runner, D, on each side.

From the rear end of these runners a seed-tube, L, rises on each side, and upon these tubes are mounted the seed-hoppers F′, which are connected by a plank, F, secured to their top, and also a bar, P, at their base, extending across from one to the other, as represented in Fig's 1 and 3, the plank F being shown broken away in Fig. 1.

Upon the axle A′ a frame, consisting of two bars, H, connected at their rear end by a cross-bar, H′, is fulcrumed in supports *h*′, the front end of these bars being pivoted by links *h* to short projecting arms *f*³ secured to the cross-bar P, connecting the base of the hoppers, as shown in Fig's 1 and 2; these bars H thus serving as a lever by
362 which the driver may elevate the runners and hoppers, by bearing with his feet on the rear portion of the levers H.

To each of the bars B of the main frame, is secured a vertical plate, I, as represented in Fig's 2 and 3; these plates I being slotted, and held in place by a set screw, *i*, so that they can be raised or lowered as desired, and being so located that the cross-bar P, at the base of the hoppers, shall rest on them when the runners are let down for planting.

The rear part of the frame rests on the wheels A, while the front end is supported by the tongue C, which is bolted rigidly thereto, and has its front end supported by the neck-yoke of the team.

It will thus be seen that by adjusting the plates I, the depth that the runners D will enter the earth can be regulated at will.

A seed-slide, F², works transversely through an opening under the hoppers, as usual in this class of machines, these slides being provided

at each hopper with two apertures or seed-cells f', which are ar-
363 ranged to receive the seed and convey it under the cut-off f, and deposit it in the seed-tubes L.

At the proper position in the bottom of the hoppers are located the cut-offs f, which are semicircular plates, projecting inwards from opposite sides of the hopper, as shown in Fig. 1; and which are so located as to leave between them a space, back and forth in which plays a vertically projecting pin, f^2, attached to the seed-slide, which thus acts as a stirrer to keep the seed from clogging in the hoppers. These semicircular cut-offs serve to cut off the seed from the seed-cells gradually, and prevent the grains from being caught or crushed, as is more or less the case with the ordinary cut-offs heretofore used.

To the opposite ends of the rear cross-bar B′ of the main frame, I pivot, on each side, a scraper, O, directly in rear of the wheels A, these scrapers having a foot lever, o', projecting rearward, as represented in Fig's 1 and 2.

By placing his feet on these levers the driver can at any time press the scrapers O against the wheels, and thus clear them of any adhering dirt.

To the rear side of the cross-bar B′, at each end, is secured,
364 by a set-screw, e, a plate, O′, which is so arranged that they may, by being moved outward, hold the levers o' up, and thus keep the scrapers O from contact with the wheels.

In operating the machine the dropper sits upon the plank F, between the hoppers, and moves the seed-slide by a lever in the usual manner. When it is desired to elevate the runners, for turning the machine, or for going round over the ground without planting, as in travelling to and from the field, the driver places his feet on the rear portion of the levers H, by which the hoppers and runners are elevated at their rear end, the runners turning on the pivot d in the arc of a circle.

By this method of constructing the machine I am enabled to produce a planter that is simple, cheap, and efficient, and that operates in a very superior manner.

Having thus described my invention, what I claim is:

1. The main frame mounted on two wheels, and having the runners pivoted, at their front end, to the front part of the main frame, substantially as described.

365 2. The levers H connected to the hoppers or runners by the links h, and arranged to operate as described.

3. The hoppers F′ connected by one or more cross-bars, located above the main frame B, so as to permit the hoppers and runners of the machine to be raised or lowered without elevating the front part of the main frame, substantially as described.

4. The semicircular cut-offs f, constructed and arranged to operate substantially as described.

5. The adjustable plates I, arranged to support and regulate the position of the runners, substantially as set forth.

6. The combination of the pivoted scrapers O, and the adjustable plates O′, when arranged to operate as described.

JAMES SELBY.

Witnesses:
A. B. FINK.
MICHAEL D. SPURCK.

366 No. 44725.

The United States of America to all to whom these letters-patent shall come:

Whereas G. D. Haworth, of Springfield, Illinois, has alledged that he has invented a new and useful corn-planter, which, he states, has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States, the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said invention, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said G. D. Haworth, his heirs, administrators, or assigns, for the term of seventeen years, from the eighteenth day of October, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention, a description whereof is given in the words of the said G. D. Haworth, in the schedule hereunto annexed, and is made a part of these presents.

367 In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office has been hereunto affixed. Given under my hand, at the city of Washington, this eighteenth day of October, in the year of our Lord one thousand eight hundred and sixty-four, and of the Independence of the United States of America the eighty-ninth.

J. P. USHER,
Secretary of the Interior.

Countersigned & sealed with the seal of the Patent-Office.
[SEAL.] JOHN L. HAYES,
Acting Commissioner of Patents.

368 The schedule referred to in these letters-patent and making part of the same.

To all whom it may concern:

Be it known that I, G. D. Haworth, of Springfield, in the county of Sangamon and State of Illinois, have invented a new and improved corn-planter, and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention, the line *x x* (Figure 2) indicating the plane of section;

Figure 2 is a plan or top view of the same;

Figure 3 is an inverted plan of the coulter and the mould-board detached.

Similar letters of reference in the three views indicate corresponding parts.

This invention relates to certain improvements in the apparatus for opening the furrows, and for depositing the seed, and also in the peculiar construction of the frame, whereby the driver is enabled to control the position of the furrowing-device in an easy and simple manner.

The nature of my invention, and its peculiar advantage, will be fully understood from the following description:

A represents the main frame, which is provided with two wheels, B, attached to the ends of the axle C. The secondary frame D is hinged to the front cross-bar of the main frame, and it supports the hopper-boxes E, and the mechanism for distributing the seed, and for
369 opening the furrows which are intended to receive the seed.

The seed is discharged from the hoppers by the action of oscillating plates, *a*, which work under the perforated bottoms *b* of the hoppers and drop the seed into tubes, *c*, which conduct the same to the furrows.

A space, *d*, at the inner edges of the oscillating plates *a*, prevents the accumulation of chaff, and allows the same to pass out freely from below the plates.

The furrows are opened by the action of a revolving coulter, F, and curved mould-board G; each of the mould-boards, is attached to the lower end of one of the tubes *c*, and it is steadied by a brace, *e*, and the distance of its rear edge from the revolving coulter determines the width of the furrow. The front edge of the mould-board is curved down close to the inner surface of the coulter, so that it acts as a scraper, keeping the coulter clean, and preventing dirt, or straw, or other impediments from accumulating at, and clogging up, the mouth of the tube.

The coulters F, are provided with axles *f*, which are firmly fastened in their centres, and have bearings in the stationary boxes *g*, secured to the braces *e* and tubes *c*. By making the boxes *g* stationary the accumulation of trash about the hub and the clogging of the coulter is prevented.

The position of the coulters, F, and the depth to which they cut in the ground, *is* determined by a hand-lever, H, which supports the arms I, to the ends of which, the driver's seat J is firmly attached. The lever H is pivoted to the longitudinal centre-beam or reach of
370 the main frame A, and it extends up through a slot between the arms I. These arms are hinged to standards K, which are firmly attached to the rear cross-bar of the secondary frame D, and they rest on a shoulder, *h*, of the hand-lever H, as clearly shown in Figure 1 of the drawing. By moving said hand-lever towards the driver's seat, the weight of the driver acts almost entirely upon the covering-wheels B, and the coulters are exposed to the action of nearly the full weight of the rear portion of the secondary frame and its attachments.

By moving the hand-lever forward, in the direction of the arrow, marked near it in Figure 1, the weight of the driver is made to balance, more and more, the weight of the rear part of the secondary frame, and the depth to which the coulters cut into the ground, is gradually dimi'shed, and if the lever is moved forward until it strikes the stop *i*, the coulters are thrown entirely out of the ground

My corn-planter is very simple, it is durable, and it can be governed by the driver in the most convenient manner. The lever H, in its forward position, bears rigidly on the main frame A; by this device the horses' necks, may be relieved from undue pressure, and the weight of the attendant supported directly on the rotary coulters. The latter act, in combination with the mould-boards, to open the furrows, and the seed is discharged freely in a vertical direction. What I claim as new and desire to secure by letters-patent, is the relative arrangement of the rotary coulters F, curved mould-boards G, hoppers E,

dropping mechanism *a b c*, and dropper's seat W, substantially as herein shown and described.

G. D. HAWORTH.

Witnesses:
JOHN CHAMLE.
R. CHURCHILL.

370½ 46629.

The United States of America to all to whom these letters-patent shall come:

Whereas George I. Bergen, of Galesburg, Illinois, has alleged that he has invented a new and useful improvement in corn-planters, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose: These are, therefore, to grant, according to law, to the said George I. Bergen, his heirs, administrators or assigns, for the term of seventeen years, from the seventh day of March, one thousand eight hundred and sixty-five, the full and exclusive right and liberty of making, constructing, using, & vending to others to be used, the said improvement, a description whereof is given in the words of the said George I. Bergen, in the schedule hereunto annexed,
371 and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this seventh day of March, in the year of our Lord one thousand eight hundred and sixty-five, and of the Independence of the United States of America the eighty-ninth.

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.] D. P. HOLLOWAY,
Commissioner of Patents.

The schedule referred to in these letters-patent, and making part of the same.

To all whom it may concern:

Be it known that I, George I. Bergen, of Galesburg, in the county of Knox, and State of Illinois, have invented certain new and useful improvements in machines for planting corn, and I do hereby declare that the following is a full, clear, and exact description thereof, refer-
372 ence being had to accompanying drawings making part of this specification, and to the letters of reference marked thereof, in which—

Fig. 1 is a plan view of the machine;
Fig. 2, a longitudinal vertical section, taken in the line of *x x*, (Fig. 1;)
Fig. 3, a vertical section of one of the seed-hoppers in the line *y y*, (Fig. 1;)

Fig. 4, a transverse horizontal section of one of the seed-tubes in the line *z z*, (Fig. 5.)

Fig. 5, a rear elevation of the same;

Fig. 6, a plan view of the seed-slide & cut-off;

Fig. 7, a front elevation of a portion of the rod and stop for operating the slide; &

Fig. 8, a rear view of the scrapers.

The nature of my invention consists—1st, in a runner of peculiar construction; 2d, in novel method of uniting the front and rear frames of the machine; 3d, in a peculiar guide for ensuring the planting of the corn in hills forming rows both ways; 4th, in a hopper of novel construction, together with special devices adapted thereto; 5th, in a seed-tube of peculiar make; a special arrangement for operating the slides; 7th, a new style of making and arranging the scrapers; and 8th, a special arrangement of the dropper's seat.

373 To enable others skilled in the art to construct and use my invention, I will proceed to describe it more in detail: My machine is of that class intended to be drawn by a team planting two rows of corn at once in hills, & to be operated by two persons, one driving and the other operating the planting-mechanism by hand. The body of the machine consists of a front frame B, mounted on runners, and a rear frame, A, mounted on wheels, the two frames being united by a flexible joint so arranged that it can be rendered rigid under certain circumstances. D represents the runners, which have their lower edges from *a* to *a* made concave instead of convex or straight, as is usual, the portion from *a* to *a* increasing gradually in width, vertically, toward its rear end, whereby the heel *a* is made to cut deeper into the earth than any other portion of the runner. These runners are made of steel, and have their lower edges sharpened. Their front ends are secured to the frame B by means of the curved braces *c*, their rear ends being united to the seed-tube E, as shown in Fig. 4. The object of making the runners thus is three fold: 1st, the concave edge gathers and presses down upon the ground the stalks, weeds, and litter that may chance to be in its path, so that in passing over them it is more certain to cut through them,

374 into the ground; 2d, by making it wider & sharp at the heel *a* a small deep gash is *is* cut at the bottom of the furrow, from which moisture is more readily furnished for germinating the seed, and continuing its growth; and third, by uniting it to the tube in the manner shown, their surfaces are brought flush on the sides where they unite, whereby the soil is prevented from adhearing to the front of the tube and interfering with its operation, as it does in those cases where a shoulder or jog is left at the union of the two parts. The front and rear frames are united at the sides by *a*, the point composed of the two parts *d* & *e*, which allows of a short vertic*le* movement of one frame independent of the other. At their central portion they are united by means of the two metal*l*ic pieces, *f* and *g*, the former being bolted to the rear and the latter to the front frame, as shown in plan, Fig. 1. The front end of *f* is clawed and slotted, as shown in Fig. 2, while the rear end of *g* is provided with a series of holes to receive the pin *h* by which *f* and *g* are united. The driver's seat G is made adjustable, which en-

375 ables the machine to be properly balanced by the weight of the driver, be the same more or less. Another advantage of having it adjustable is that the driver can thus throw more or less pressure upon the runners to suit the variations in the condition of the soil in different parts of the field, some portions being harder than other portions, & hence requiring more pressure to cut the furrow of proper

depth at such places. It also enables him to balance the machine properly, and adapt it to a dropman of varying weights, as for instance, whether the dropman be a man or a boy.

As the joint formed by pin *h* is some distance in front of a line passing through the joints in the sides of the frame formed by *d e*, it follows that, when the dropman dismounts, as is the custom in turning at the ends of the rows, the weight of the driver, acting on frame A as a lever, whose fulcrum is the axle, the front end of said lever, which is the curved end of *f*, operates to lift the rear portion of frame B with its runners clear from the ground so that the machine can be turned about upon its wheels like a cart. When this is done it is obvious that a portion of the weight of frame B, through the medium of the tongue F, would
376 be brought to bear upon the necks of the animals, if no provision was made for preventing it. It will be seen, however, that when the bar *f* begins to elevate the frame B, the movement soon brings the piece *e* of the side joints up against the plate *d*, whereby the side joints are locked or rendered rigid, and that when this is accomplished any further movement of *f* upward, will lift not only the rear of frame B, but the entire frame, tongue and all, and that thus the necks of the animals can be entirely relieved from pressure. It is desirable that the movement required to render the side joints rigid, should always be uniform, or as nearly so as possible. It is obvious that as pin *h* is moved forward the length of *f*, acting as a lever, in connection with frame A, of which it forms a part, would be increased, and that then a less movement of the rear portion of frame A would be required to render the side joints rigid. This I obviate by curving the front end of *f*, and the slot therein, as shown, it being apparent that as pin *h* is placed in a hole further forward it occupies a lower position in the slot, whereby hinge *e* is forced further down upon the pin *d*, so that the distance
377 which *e* will have to move in order to come in contact with plate *d*, will be increased in exactly the same ratio that the length of *f* has been increased, and thus the movement of the rear portion of frame A and of the driver is at all times the same.

The pieces *f* and *g* are both made of cast-iron and bolted to the under side of their respective frames A and B, as shown in Fig. 1, the front end of *g* being cast with side flanges projecting downward, so as to embrace the rear end of the tongue F, which is thus held firmly in place, & prevented from being split. The frame's *rigid* may be increased or decreased at pleasure. In machines of this kind it has hitherto been the practice to use a single point, usually the end of a stick projecting over the side of the frame, as a guide for the eye in determining the precise instant for operating the seed-slide. In such case it is obvious that if the dropman's head be moved either forward or backward, the slide will be operated correspondingly, too late or too soon, and that hence the hills will not be planted exactly opposite each other, in the various rows, which run at right angles to the line of the machine movement. To obviate this difficulty, I use a guide composed of two points
378 *b* and *b*, so that in bringing them both in range or in line with the eye of the dropman he is prevented from moving his head either forwar' or backward, without being instantly informed of the same. It is obvious that a plane vertical surface may be used as a guide with the same results, the eye ranging along said surface from side to side, the operation being the same as in taking aim with the sights of a gun or along the side of a wall or building. In Fig's 1, 2, & 3, this guide is shown attached to the front of the hopper, but is obvious that it may be secured in any manner, or at any other point, provided it be located

in proper relation to the dropman's seat. By the use of such a guide I am enabled to plant hills with a degree of accuracy hitherto unattained.

C represents the hoppers for containing the seed; Fig. 3 being a vertical section of the same with the seed-slide & other parts in position. This hopper I construct of cast-iron in a single piece in the form shown, with the leg *i*, by which it is supported on its rear side, the bottom of *i* being provided with a suitable flange, having a hole therein to receive a bolt as shown. The front and rear sides of the bottom of hopper
379 *c* are made converging as shown, leaving an open channel at the bottom just wide enough to receive the cut-off *j*.

A cast-iron plate *k*, of the form shown in Fig 9, is made of sufficient width to extend from the front of bar B back under the foot of I. This plate is provided with a flange on its front edge, which projects both upward and downward, the lower portion serving to bolt it securely to the front of bar B, while the upper portion is provided with a shoulder upon which the lower front edge of the hopper rests, the hopper being secured to plate *k*, by means of two bolts, as shown in Fig. 3. A hole, *l*, for the seed to pass through, is made in plate *k*, and also a slot, *m*, for the stem of valve *m* to work in, as the latter is moved to & fro by the slide *o*, a notch in the edge of *o* being provided to receive the stem of *m'*, and in which it rests loosely. The shoulder upon the rear side of the upper flange of plate *k*, upon which the front edge of the hopper rests, keeps the bottom of the hopper up from the surface of plate *k*, so as to leave a space between them of sufficient size to receive the slide *o*, the leg *i* being made of proper length to bring the bottom of
380 the hopper parallel with the upper surface of plate *k*. The cut-off *j* is secured by a suitable stem, attached to the inside of the hopper, so as to bring it in proper position in the channel in the bottom of the hopper, and may be made adjustable if desired. In Fig. 3, 6 represents the planting-guide attached to the front of the hopper, its lower end resting upon the upper flange of plate *k*. By this method of constructing the hopper and the bed-plate *k*, upon which it rests, I secure a very firm, strong, and compact device, one that is not affected by the weather, as it cannot swell, warp, or shrink, so as to affect the working of the seed-slide, which has heretofore been a source of much trouble in this class of implements. By giving the bottom of the hopper the form indicated, the corn is all fed down upon the slide *o* by its own gravity, whereby I am enabled to plant nearly every kernel out of the hopper, there seldom being more than five or six left, and to dispense with all pins, stems, or other devices so frequently necessary to agitate or stir up the corn and prevent it from clogging.

E represents the seed-tube which is also constructed of cast-iron. This tube is cast in two pieces, being divided vertically,
381 as shown in Fig's 4 and 5. Lugs are cast on the rear side for bolting or riveting the parts firmly together, as shown, the front edge being provided with a flange, projecting forward from each of the parts where they come in contact, which is straddled by the rear end of runner D, through which rivets pass transversely, serving the double purpose of uniting the two parts of the table in front, and also securing the runner firmly thereto, as shown in plan in Fig. 4, the space in the rear portion of the runner not occupied by the flange on the front of the tube being filled in with wood. The upper end of the tube E is cast with a flange on its two sides, as shown in Fig. 5, by which it is securely bolted to the under side of bar B'. The two parts are so cast as to leave an elongated opening in the rear side of the tube, as shown in Fig. 5, a projection, *p*, being cast upon one of the parts to receive the

end of bolt *q*, upon which the valve *m* is pivoted. By this construction of tube E, I am enabled to provide a very perfect device, which can be easily and firmly secured to the other parts, ready for instant operation.

382 The opening in the rear side of the tube, & which should be of such a size that the kernels of corn will not escape through it, enables the driver, sitting upon his seat G, to see the valves *m'*, and thereby at all times to detect any failure in the latter to operate. As heretofore arranged, it has been difficult to remove the valve *m*, when the latter, as is frequently the case, became inoperative, by clods, sticks, or similar substances, being caught in the bottom of tube E. By my arrangement, the valve *m* is held simply by the bo't *q*, the stem at its upper end resting loosely in a notch, in the edge of slide *o*, as shown in Fig. 3. By withdrawing the bolt *q*, the valve *m'* can be readily withdrawn from the bottom of tube E, and as readily replaced whenever desired.

H represents the scraper, the plan of which is clearly shown in Fig. 8. These scrapers are of iron or steel, and have their body made of V shape, its central portion being left open or cut away, as shown, thus leaving an open space slightly wider than the face of the tire on the wheel. One of these scrapers is placed in rear of each wheel, as usual, and they are firmly secured to a bar, I, by their upper bent portion, as

383 shown in Fig. 2. This bar is so mounted on the frame A, as to turn easily in its bearings, and has attached to it a short lever, *r*, as shown in 1. When it is desired to operate them, the driver, sitting on his seat G, presses his foot on the lever *r*, which rotates the bar I, so as to bring the scrapers in contact with the wheels. The scraper being so attached to the bar I, as to throw their weight forward of the point of attachment of bar I to frame A, it follows that when the driver removed his foot from lever *r*, the weight of the scrapers cause the bar I to resume its original position thereby automatically removing the scrapers from contact with the wheels. By having the scrapers made with the open space in the center, as shown, the soil which would otherwise become packed upon their face or front side, and thereby prevent the edge from coming in contact with the wheel, is prevented from so doing; and thus my scraper is at all times in perfect condition to operating successfully.

Instead of using a lever for operating the seed-slides, I use the sliding-rod K provided with the handle S. This rod I mount upon two standards J, which are firmly secured to the bar B', as shown. A short dis-

384 tance inside from either hopper C, at each end, K has a bent arm *t*, which projects down & connects with the slide O. On the inside of the arm *t*, a shoulder, *u*, is provided, as shown in Fig. 7, which, as it comes in contact with standard J, limits the movement of rod K, and consequently of the seed-slides also. By this means, the operating mechanism is all located above the bar B, where it is not liable to be obstructed by stalks, weeds, &c., which frequently interferes with the operation of the machines in the field, when constructed in the ordinary way.

It will be seen by Fig. 2 that the dropman's seat *a** is so located that a perpendicular line from the center of the seat will pass in rear of the heel *a''* of the runner, as indicated by the red line. By this arrangement the heel of the runner forms a fulcrum upon which the weight of the driver operates, through the medium of frame B, acting as a lever to elevate the front of the tongue F which is rigidly attached to said frame, and thereby relieves the necks of the horses from the pressure that would otherwise be brought upon them, and which is a serious objection in most machines of this class.

Hitherto great difficulty has been experienced in using rubber as a cut-off in seed-planters, it often happening that one or more kernels would be caught between the under surface of the rubber, and
385 the slide and becoming imbedded in the yielding rubber, would stick there. and thus greatly impede the operations of the slide. It also frequently happens that some of the kernels, as they fall, or are crowded into the cell in the seed-slide stand on end, and project above the slide in such a manner that when brought suddenly in contact with the edge of the cut-off the kernel is broken or crushed, by which its value as seed is destroyed, as seed when thus injured, will not germinate; and this difficulty is still more likely to occur where a hard substance is used to form the cut-off, as is done in many machines. I entirely obviate these difficulties by using a rubber cut-off, the diameter of which is just equal or very nearly so, to the diameter of the seed cell. Fig. 6 is a plan view of the seed-slide *o*, the cell being represented by V, and the rubber cut-off J being shown by the red lines. It will be readily seen that if a kernel projects above the slide, it will simply be caught between the edge of the rubber and the side of the cell, the rubber yielding sufficiently to prevent the kernel from being crushed. It follows that the kernel is simply held in that position, until, by the reverse movement of the slide, it is liberated, when it readily falls
386 down upon its side within the cell, from whence it passes down into the seed-tube upon the return movement of the slide. By this means I produce a perfectly operating device, one which neither injures the seed, nor is injured by the seed.

With these various improvements all combined in one machine, I am enabled to produce an implement that accomplishes the desired result, in a most perfect manner, and that obviates the numerous difficulties which have heretofore existed, to a greater or less extent, in nearly or quite all planters of this kind.

Having thus fully described my improvements, what I claim as new therein and of my invention, and for which I desire to secure letters patent, is—

1st. The runner D, having a concave edge along its front part and a slightly descending straight edge from a' to a'' as shown and described.

2d. I claim uniting the front and rear frames of a corn-planter by means of the curved slotted bar *f* and bar *g*, in combination with the loose joint *d e*.

3d. I claim a guide for planting, consisting either of two joints or a broad plane surface substantially as set forth.

387 4th. I claim the hopper C when constructed as herein set forth.

5th. I claim the plate K, when constructed & used as and for the purposes described.

6th. I claim the scrapers H, constructed as described and mounted on the roller I in such a manner as to automatically remove themselves from contact with the wheels, as and for the purpose set forth.

7th. I claim the seed-tube E, when constructed as shown and described.

8th. I claim the rubber cut-off J, when constructed and operating as herein set forth.

9th. I claim the sliding-rod K having the bent arms *t*, and operating in conjunction with the standards J, and seed-slide *o*, as and for the purposes set forth.

10. I also claim pivoting the valve m' on the removable pin *q*, and having the stem of said valve resting loosely in a notch, O, in the edge

of the seed-slide outside of the hopper, all arranged and operating as herein described.

GEORGE I. BERGEN.

Witnesses:
W. C. DODGE.
JNO. D. PATTEN.

388 The U. States Patent-Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the specification and drawing in re the re-issued letters-patent granted Jarvis Case, April 17, 1866, No. 2227.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent-Office to be hereunto annexed, this sixth day of May, in the year of our Lord one thousand eight hundred and sixty-six, and of the Independence of the United States the ninetieth.

[SEAL.] T. C. THEAKER.

Jarvis Case, of Springfield, Ohio. Letters-patent, No. 12231, dated Jan'y 16, 1855. Re-issue No. 623, dated Nov. 16, 1858. Re-issue No. 2227, dated April 17, 1866. Improvement in corn-planters.

To all whom it may concern:

Be it known that I, Jarvis Case, of Springfield, county of Clarke, and State of Ohio, have invented certain new and useful improvements in machines for planting corn and similar seeds, and I do hereby
389 declare that the following is a clear, full, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which are hereby made a part of this specification. Fig. 1 represents a longitudinal vertical section of my improved machine, taken on a line running through the center.

Fig. 2 is a top plan view of the machine. Similar letters of reference, where they occur on the seperate figures, indicate like parts of the machine. My invention relates to that class of machines which are designed to plant corn in "check-rows," and consists in a novel method of combining and arranging a valve in the seed-hopper with another valve below the hopper, in such a manner that by a single impulse or movement of the same a charge of seed shall be dropped from each. It also further consists in a novel arrangement of devices for operating said valves, and also for converting it at will from a hand to an automatic planter. Machines have heretofore been constructed in which the seed-slides or valves were operated by the use of one or more wheels rolling upon the ground, such machines being termed automatic, in contradistinc-
390 tion to those in which the valves are operated by the hand of the attendant.

Experience has demonstrated that, with these automatic machines, it is impossible to plant in check-rows with the desired degree of accuracy, for the reason that, as the wheel rolls into depressions and over obstructions its distance is so changed in different rows that the machine will not plant the hills of one row directly opposite those of the adjoining row. In order to plant in check-rows with accuracy, it is therefore necessary that the machine should be operated by hand, so that the seed may be deposited in the ground at the proper instant. It will also be readily understood that if the seed has to pass the entire distance from the hopper to the furrow, at one operation, it will be scattered for some

distance along the row, as the machine will be moving forward during all the time between the seeds, leaving the hopper and their striking the ground; and as the machine will sometimes move faster than at other times, it is impossible, even when operated by hand, for the operator to so time his movements as to deposit the seed at the exact instant required. It is also found, by experience, that the continuous
391 muscular movement required to operate the valves, when they are so arranged that the muscles must be exerted to move them both forward and backward to plant a single hill, must necessarily be so rapid that it renders correct planting extremely difficult and excessively fatiguing to the operator. My invention has for its object the removal of these difficulties in check-row planting-machines.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it: A represents the frame or body of the machine, which is supported near its rear end upon a wheel, B. The forward portion of the frame carries a plow, C, for opening a furrow to receive the seed. D D represents handles similar to those of an ordinary plow, by which the operator may guide and control the machine. E is a seed-box or hopper, having its bottom inclined, as shown in Fig. 1, so as to cause the seed to slide forward to the exit provided for it. Underneath this bottom F, is placed another bottom *a*, with a space between them for the seed slide or valve *c* to move in, said slide *c* being provided with a hole, *e*, for receiving a proper quantity of seed to plant a hill and convey it to the upper end of the tube G, down which it passes until it is arrested by the slide or valve
392 *r* located near the bottom of said tube G, as shown in Fig. 1. *f* is a cut-off, under which the cell *e* is moved by the motion of the slide *c*, a brush, *i*, being so located as to sweep off any surplus seed from the cell *e*, prior to the latter's discharging its contents into the tube G. To the rear end of the slide C a rod, *s*, is attached, the opposited end of said rod being secured to an elbow-lever, *t*, that is fastened to a rock-shaft, *u*, and to which a drop-weight, *v*, is also attached, to aid in restoring the rock-shaft and slides to their original position, after being operated by the attendant. I is a lever pivoted to the handle D at *u*, one end, *x*, of the same laying close to said handle, so that the operator may work it with facility, the other end, *y*, of said lever being in contact with the weight *v*, so that, by pressing down the arm *x*, the shaft *n* will be rocked, and the seed-slides *o* moved forward, as shown in the blue lines in Fig. 1. An elastic wire, 2, is stretched from to other handle D, near to and parallel with the rock-shaft *u*, against which a projection, *h*, on said shaft (see Fig. 2) comes, when the said slide is moved forward,
as above described, thereby aiding the weight *v* to return the
393 slides and operating parts to their original position, ready for planting another hill. It is obvious that a weight or spring may either be used alone to secure the return movement of the parts; but their united action gives a vibrating motion to the seed-slide *e*, without opening either the valve in the seed-hopper, or the one in the seed-tube, thus aiding the cell *e* in slide *c* to fill with a uniform amount of seed. At the lower end of the tube G, I also locate another slide or valve, *r*, which is connected by means of the cord or rod O to the short arm of a lever, *m*, which is pivoted to *n*, the upper end of said lever projecting up so as to be hit by the front end of the upper slide *c*, when the latter is moved forward. By this means both slides C and *r* are operated simultaneously, and a charge of grain is thus dropped from each at one impulse, or by one exertion of the muscles. By this means only half as many motions or exertions of the muscle are required as in machines

which require the slides to be moved both forward and backward by the operator; and this I deem of great importance, as it always secures a charge of seed on the lower valve in time for the next hill; and
394 it is not so much the amount of power required to operate the slides, as it is the frequency and continuous monotony of the movements that renders the operation so excessively fatiguing to the operator. In check-row planting the operation is as follows: The ground having been marked by rows, at proper distances apart, in one direction, the operator starts the machine across the field in the direction to cross the previously-made rows at right angles. At the instant that the indicator, 7, or the lower end of seed-tube G, comes to the cross-mark or row, he throws down the end of lever I, which carries the charge of grain that is in the cell *e* of the slide C forward, and empties it into the tube G, the slide *r* being opened by the same movement, and letting out the charge that was previously deposited there by the slide C, the slide *r* closing again in time to arrest the charge that falls from C, and this operation is repeated at the crossing of each row across the entire field. The machine is then turned about, and moved back across the field, planting, as it goes, a hill at the crossing of each row, directly opposite those previously planted. It will thus be seen that a charge of seed is constantly ready in the bottom of
395 tube G, so that, as the machine arrives at the proper point, this seed, having but a very short distance to fall, and the movement of the slides being entirely under the control of the operator, the seed may be planted in check-rows with unerring certainty, and with but a single effort, on the part of the operator, to each discharge of seed. As it is sometimes desired to plant corn or other seeds in drills, I have added a lever, J, which is pivoted at 4, and has its lower end projecting down so as to be struck by the pin 5, projecting from the side of wheel B, as shown on dotted lines in Fig. 1. The opposite end of this lever J is connected to the projection 3, on the rock-shaft *u*, by a link, 6. It will thus be seen that, as the machine moves forward, the pins 5 will successively hit the lower end of lever J, causing it to vibrate, and thereby operate the seed-slides without the assistance of the operator. This, however, is only intended for drilling, and not for check-rowing, which latter is the prime object of my invention. It will, of course, be understood that, when either one of these plans is used, the other will be disconnected, as it is obvious that both cannot be used at once.

396 It is obvious that many other mechanical arrangements may be substituted for those here shown to operate the seed-slides or valves, and I do not, therefore, desire to be understood as limiting myself to the special devices shown for operating the slides, as they are not considered by me as the gist of my invention; the prime object of my invention being to reduce the muscular movements required to operate the valve, to *certainly* secure a charge of seed on the lower valve in time for the next hill, and at the same time have each valve pass a charge of seed by a single impulse or movement.

I do not claim broadly the use of two valves, so arranged that one of said valves shall pass a charge of seed when moved in one direction, and the other passing a charge of seed only on the return movement of the first valve; as I am aware that such have been used by C. Finn, as shown in his model, filed in the Patent-Office April 23rd, 1852.

But having thus fully described my invention, what I claim is:

1st. I claim the seed-slide *c*, lever *m*, rod *o*, and slides *r*,
397 whereby a valve at the seed-hopper of a corn-planter is so con-

nected with another valve below the seed-hopper that by a single impulse or movement a charge of seed shall be dropped from each valve, substantially as described.

2nd. I claim the combination of lever I, rock-shaft *u*, weight *v*, & wire Q, with lever J, whereby the valves of one corn-planter may not only be operated to produce the double drop of seed described, but will become convertible at will from a hand-planter to an automatic planter, substantially as described.

3rd. I claim, so arranging and connecting a valve at the seed-hopper of a corn-planter with another valve below the hopper, in combination with a lever, that the attendant of the machine, as it is moved over the ground by a single throw of the lever, not only discharges the seed from the valve below the hopper at the proper time, but drops a charge from the valve at the seed-hopper to the valve below, in readiness for the next hill, substantially as set forth.

4th. I claim, so combining and arranging the mechanism of a corn-planter's valves that the valve in the seed-hopper and the valve in the seed-tube below the hopper may each be made to drop a charge
398 of seed by a single impulse or movement, substantially as described.

JARVIS CASE.

Witnesses:
GEO. MOWER.
J. K. MOWER.

399 No. 82162.

The United States of America to all to whom these letters-patent shall come.

Whereas James Selby, of Peoria, Illinois, has alleged that he has invented a new and useful improvement in corn-planters, and has made oath that he is a citizen of the United States, believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor: These are, therefore, to grant to the said James Selby, his executors, administrators, or assigns, for the term of seventeen years from the fifteenth day of September, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent-Office to be hereunto affixed.

Given under my hand, at the city of Washington, this fifteenth day of September, in the year of our Lord one thousand eight hun-
400 dred and sixty-eight, and of the Independence of the United States of America, the ninety-third.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent-Office.
[SEAL.]
ELISHA FOOTE,
Commissioner of Patents.

United States Patent-Office.

James Selby, of Peoria, Illinois. Letters-patent, No. 82162, dated September 15, 1868. Improvement in corn-planters.

The schedule referred to in these letters-patent and making a part of the same.

To all whom it may concern:

Be it known that I, James Selby, of Peoria, in the county of Peoria, and State of Illinois, have invented certain new and useful improvements in corn-planters; and I do hereby declare, that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference, marked thereon, like letters indicating like parts, wherever they occur.

To enable others, skilled in the art, to construct and use my invention, I will proceed to describe it. My invention consists in certain improvements in the construction and mode of operating the valves of corn-planters, as hereinafter more specifically described.

401 Fig. 1 is a longitudinal vertical section of a seed-hopper with its tube and valves attached.

Fig. 2 is a bottom-plan view of the same.

Fig. 3 is a transverse section of the seed-tube, taken on the line *x x* of Fig. 1.

Figure 4 is a bottom-plan view of a portion of the seed-slide or upper valve and upper end of the lower valve-rod. My present invention relates to that class of machines known as horse or two-row corn-planters, and is an improvement upon the machine heretofore patented to me, these improvements, however, being applicable also to other machines as well as to my own.

The improvements consist, first, in an arrangement of devices for operating the upper valve or seed-slide, and, second, in a new arrangement of the lower valve and seed-tube, and means of operating the valve. I construct the hopper A and its bottom E in the manner described in my patent of August 30, 1864, with the seed-slide C working between the bottom E and a plate G, to the under side of which the seed-tube B is firmly attached, as represented in Fig. 1. From the inner side of plate G an arm, D, projects, as represented in Fig. 1, and upon this arm rests a friction-roller, *h*, attached to the under side of the slide C, the roller *h* being grooved at its centre, so as to have a flange, *l*, projecting down on each side of the arm D to serve as a guide, and keep the slide from being pushed sidewise, and thus binding in its bearings, the object

402 being to cause the slide C to work freely and easily, and prevent the usual binding and wear of the parts. It will, of course, be understood that this arrangement is duplicated on the opposite side of the machine, and that thus the slide C rests on and is guided by the two grooved rollers *h* running on the two rigid arms D.

The slide C is operated by a lever, L, in the usual manner; but this lever, instead of having its lower end project loosely through a mortise or hole in the bar connecting the two slides C, has a pin, D, passing transversely through its lower end, which pin rests in notches in the upper face of a projecting lug, *b*, attached to the slide C, as shown in Fig 1. The lever L is fulcrumed by a similar pin, *t*, to another lug or arm, *a*, secured to the inner top side of the hopper A. By this arrangement, when the lever L is operated to move the slide C, the latter will

be kept pressed down on the arm D instead of being raised more or less, as it is apt to be when the lever works loosely in a hole in the slide, or the bar connecting the two slides at opposite sides of the machine, and thus it is made to work more easily, and without the binding effect usual in this class of machines. The seed-tube B is made rectangular in cross-section, as represented in Fig. 3, and it is divided by a vertical
403 partition, I, into two separate compartments or tubes which extend from the under side of the plate G down to a transverse partition, *f*, located near its lower end, as shown in Fig. 1, the two tubes being so arranged that the seed is delivered by the slide C alternately into one and the other.

The partition I does not extend entirely across the tube B, but stops short at one side, thus leaving a small space in which is located a rod, *b'*, as shown in Figs. 1 and 2. At its lower end this rod is journalled in the horizontal partition *f*, through which it extends, and has a valve, *n*, secured to its lower end, directly under the partition *f*, this valve *n* being arranged to swing so as to close alternately the holes *o* made through this partition *f*, these holes being arranged one on each side of the partition I, as shown in Figs. 2 and 3. The upper end of the rod *b'* is bent in the form of a crank, *c*, as shown in Fig. 1, and has its point fitting in a recess, *e*, the form of which is more clearly shown in Fig. 4, this recess *e* being formed in the under side of the slide C.

By this arrangement, every time the slide C is moved either way the walls or sides of the recess *e* in the under side of the slide C strike against the crank *c* and turn the rod *b'*, and thereby operate the valve *n*. The slide, with its seed-cells *i*, is so arranged that while the
404 seed is dropped from the hopper into one of the compartments in tube B, the valve *n* is so moved as to open the hole *o* in the other compartment, and permit the seed, previously deposited therein, to fall into the furrow below.

By these improvements I add greatly to the efficiency of the machine and the ease with which it can be operated.

Having thus described my invention, what I claim is—

1. The combination with the slide C of the roller *h* and arm or support D, when arranged to operate, substantially as described.

2. The lever L, having its lower end resting in a socket or rest connected to the seed-slide for the purpose of holding the slide down while operating it, as set forth.

3. The seed-tube B, provided with the vertical partition I and horizontal partition *f*, with the holes *o* therein, substantially as described.

4. The valve-rod *b'*, with the valve *n* attached thereto, said rod *b'* being located in the seed-tube B, and operated by the slide C, substantially as shown and described.

JAMES SELBY.

Witnesses:
MICHAEL D. SPURCK.
A. B. FINK.

405 UNITED STATES OF AMERICA,
Northern District of Illinois, ss:

The United States of America, to William Jones, esq., a commissioner of Brookville, Franklin County, Indiana, greeting:

We, reposing special confidence in your fidelity and provident circumspection, do hereby authorize and appoint you to take the testimony in writing, of Benjamin W. Remy, of Brookville, aforesaid, and Edward

Burgess, of said Franklin County, whom you are hereby authorized and required to bring before you at such time and place as you may designate and appoint for that purpose, and that at such time and place you will proceed to examine, under oath, said witnesses, upon the interrogatories and cross-interrogatories, hereunto annexed, at the instance of the def't and compl't in a certain cause now pending and undetermined, in our circuit court of the United States, for the northern district of Illinois, before the judges thereof, wherein George W.
406 Brown is the plaintiff, and George I. Bergen and Frederick P. Sissen are the defendants. The answer to the annexed interrogatories and cross-interrogatories you will cause to be reduced to writing, in the order in which they shall be proposed and answered, and shall then be signed by said witnesses. At the foot thereof you will add a certificate, subscribed by yourself, stating that it was sworn to and subscribed by said witnesses, and the time and place when and where the same were taken; which said examination of said witnesses so taken, with your certificate thereto attached, you will send direct to our clerk of our circuit court of the United States, for the northern district of Illinois, sealed, with the names of the parties litigant endorsed thereupon, with early despatch, together with this writ.

Witness the Honorable Salmon P. Chase, Chief Justice of the Supreme Court of the United States of America, at Chicago, Illinois, this 6th day of July, in the year of our Lord, one thousand eight hundred and sixty seven, and of our Independence the 92nd.

[SEAL.] WM. H. BRADLEY,
Clerk.

407 UNITED STATES OF AMERICA,
Northern District of Illinois, ss:

In the United States circuit court.

GEORGE W. BROWN
vs.
GEORGE I. BERGEN AND FREDERICK P. SISSEN. } In chancery.

To the plaintiff and his attorneys, Messrs. Goodwin & Larned.

GENTLEMEN:—You will please take notice that on the 13th day of July A. D., 1867, at ten o'clock in the forenoon of said day, we shall sue out of the office of the clerk of the above-entitled court a commission under the seal of said court, and directed to William Jones, esquire, a notary public, of Brookville, Franklin County, Indiana, or to any person authorized by law, to take the depositions of Benjamin W. Remy, of said Brookville, and Edward Burgess, of said Franklin County, upon the interrogatories hereto attached; the same to be read in evidence on the part of the defendants, on the hearing of said
408 cause, when and where you can appear, and file cross-interrogatories and join in said commission if so you wish.

Dated this 3d day of July A. D., 1867.

GOOKINS & ROBERTS,
Sol's for Def'n's.

Interrogatories to be propounded to the witness Benjamin W. Remy on behalf of the defendants, Bergen & Sissen.

1. What is your name, age, residence and occupation?
2. Where did you reside during the year 1850, and where have you resided since that time?

3. Are you the Benjamin W. Remy, who, with R. A. Kelly, on the 3d day of April, 1850, made an affidavit before Daniel St. John, a justice of the peace of Franklin County, Indiana, that you verily believed yourselves to be the original and first inventors of certain improvements in seed planters, described in the specifications annexed thereto, and on the 4th of June, 1850, filed in the Patent-Office of the United States, an application for a patent therefor, accompanying
409 said application with a specification and drawings and model thereof?

4. If you answer the last above interrogatory in the affirmative, state whether or not you ever made a full-sized working machine for planting corn, and if you described the plan and principle of the machine, and wherein it resembled or differed from the said model and drawings and specifications aforesaid, and when and where you so made it. Describe it minutely and with particularity.

5. If you answer the last above interrogatory, that you did construct a full-sized working machine, state whether you ever put the said working machine into practical operation, and if yea, when and where; how much work did you so do with it, and did it or not prove a practical working machine, and describe its practical operation.

6. If you answer that you made a machine upon the plan and principle of the said model, drawings, and specifications, state whether or not the seeding-teeth as well as the harrow-teeth were raised out of the ground by the lever, or did the band prevent the seeding-teeth
410 from being raised out of the ground by said lever?

7. Did you or not operate said machine by hand; if yea, did you then employ any band, as indicated in the model; if nay, what arrangement was substituted; describe its construction and operation, and where did you so operate it; was it or not a check-row planter?

8. If you answer that you operated the seeding-devices sometimes by hand, state whether or not there was a place where the operator of the seeding-devices could ride or sit while working the seeding-devices by hand; and, if yea, where?

9. If you state that the machine was constructed so as to be operated by hand as a check-row planter, and that the dropper and driver could both ride on the machine when so operated, state whether or not the dropper could sit or stand in a position to see the previously-made furrows and drop into them.

10. Did you ever exhibit the said machine, in practical opera-
411 tion, to any of your neighbors; if yea, who, and when, and where?

11. Did you or not obtain a patent for said invention?

12. Did you or not make more than one full-sized working machine; and if not, why not? State your reason fully. State whether there was a limited or good demand in your vicinity for corn-planting machines operated by two horses, to plant two rows at a time, at the time you made your said machine, and has there been any demand since for that class of machines? What was then, and what is now, the average size of the corn-fields in your vicinity?

13. Did you not make a machine or machines different in plan and principle from the model and machine above indicated; and, if yea, how many did you so make—when and where? and describe the construction and operation thereof particularly.

14. Do you know of any other matter or thing touching the matters in controversy in this cause, that may tend to the advantage of
412 the defendants, in addition to what you have stated? If yea,

state the same as fully and at large as if you had been particularly interrogated in reference thereto.

Interrogatories to be proposed to the witness Edward Burgess on behalf of the defendants, Bergen & Sissen.

1. What is your name, age, residence, and occupation?

2. Are you acquainted with Benjamin W. Remy, of Franklin County, Indiana; and, if yea, how long have you known him?

3. Do you know of said Remy having a corn-planter in his possession and use; if yea, when and where did you first see it in use, and describe it as well as you can?

4. If you answer the last question in the affirmative, state whether or not you assisted at any time in operating said planter; and, if yea, when and where?

413 5. Was it or not a practical machine; and, if yea, did it do the work well or ill, and how much work did you see it do?

6. Was it or not a check-row planter operating by hand; and, if yea, did it plant in check-rows well or ill?

7. Was there any arrangement for raising the seeding-teeth out of the ground in turning around? If yea, describe it, and how it worked or operated.

8. When the harrow-teeth were raised out of the ground, were or not the seeding-teeth raised out of the ground at the same time by the same arrangement?

9. Was there or not a place on that machine where the dropper of the seeding-devices could sit or stand?

10. If you answer the last above question in the affirmative, state whether or not the stand or seat was so located as that the dropper could see the previously-made furrows or rows and drop the corn into them as the machine passed over them.

414 11. Do you know any other matter or thing touching the matter in controversy in this cause, that may tend to the advantage of the defendants, in addition to what you have already stated? If yea, state the same as fully and at large as if you had been particularly interrogated in reference thereto.

GOOKINS & ROBERTS,
Sol's for Def'ts.

Rec'd a copy of within notice and interrogatories this 3d day of July, 1867.

GOODWIN & LARNED.
Per G. E. ADAMS.

(Indorsed:) U. S. circuit court northern dist. Ill's. Brown vs. Bergen & Sisson. Notice to take depositions. Ints. to wits. Gookins & Roberts.

415 U. S. circuit court, nor. dist. Ill's.

GEORGE W. BROWN
vs.
GEORGE I. BERGEN & FREDERICK P. SISSON. } In chancery.

Cross-interrogatories to be administered to Benjamin W. Remy and Edward Burgess, defendants' witnesses, by William Jones, esq., comm'r, and in behalf of George W. Brown, complainant.

Cross-interrogatories to be administered to Benjamin W. Remy.

First. Have you been heretofore examined as a witness in the matters in controversy in this suit, in the case of George W. Brown vs. Ives McGaffey et al., about the 19th day of February, 1866?

Second. If, in answer to the 7th direct interrogatory you say you worked said machine by hand, state whether the machine you so
416 worked by hand was constructed substantially as and after the plan and description of the machine described and set forth in the specifications and patent of yourself and one Kelley, dated about June 18, 1850? Was it constructed and geared for and as a self-operating machine, as described in said patent specifications? What alterations did you make in order to work it by hand; and how did you work said machine? Did you ever work more than one machine of that kind by hand? Who owned the machine or machines? Did you ever work such machine by hand more than once; and how much ground did you plant; and whose was it? What was done with said machine or machines afterwards? Did such machine or machines subsequently continue to be used as a self-operating planter or drill? When you worked said machine by hand, did you or the man operating the seeding-devices walk by the side of the machine and work said seeding-devices by a temporary handle or crank; or how was it
417 done; and when did you first try said experiment?

Third. If you say, in answer to the 8th direct interrogatory, that there was a place on said machine for a dropper to ride or sit, state how it was constructed, and in what respect, if any, it differed from the patented machine described by Remy and Kelley.

Fourth. Was the manufacture of machines, such as described by Remy & Kelley, abandoned, and when? If not, state how many of such machines, within your knowledge, have been made and sold in each year since 1850.

Cross-interrogatories to be administered to Edward Burgess.

First. Was the machine referred to in your direct examination and answers constructed by said Remy and Kelley, as described in their patent and the specifications annexed; and was it understood and
418 claimed by them to be the same machine, and to combine a harrow and a seed-planter or drill, with a lever to raise the harrow out of the ground? Was it a self-operating machine, working with a belt and gearing upon the journal of the drum or roller behind, and upon a journal at the end of the seed-shaft?

We waive all objections that might be taken (under the 67th rule of equity of this court) to this commission, by reason of the fact that the same is taken upon written interrogatories, reserving all objections thereto otherwise.

GOODWIN & LARNED,
Sol's for Compl't.

419 UNITED STATES, *District of Indiana:*

Be it remembered that, on this 13th day of July, A. D. 1867, personally appeared before me, William H. Jones, a notary public in and for the county of Franklin and State of Indiana, United States of America, duly authorized by law to take affadavits, depositions, acknowledgements, and to administer oaths, &c., Benjamin W. Remy and Edward Burgess, to testify and in truth say, on the part and behalf of

the defendants, in a certain suit or matter of controversy now pending and undetermined in the circuit court of the United States in and for the northern district of Illinois, wherein George W. Brown is plaintiff, and George I. Bergen and Frederick P. Sissen, defendants. And the said witnesses being of lawful age and of sound mind, and having been by me first cautioned and sworn to testify the truth, the whole truth, and nothing but the truth, I then proceeded, in accordance with, and pursuant to, the enclosed notices and commission, to examine and cross-examine said witnesses by propounding the following interrogatories presented to me by the defendants and plaintiff for such purpose.

420 The said BENJAMIN W. REMY, 1st witness in the matter of the controversy aforesaid, in behalf of said defendants, did thereupon depose, testify, and say as follows:

Quest. 1. What is your name, age, residence, and occupation?

Ans. 1. My name is Benjamin W. Remy. My age is 59 years. I am a mechanic.

Quest. 2. Where did you reside during the year of 1850; and where have you resided since that time?

Ans. 2. I resided in Brookville, Indiana, in the year 1850, and have resided there during all the time since the year 1848.

Ques. 3. Are you the Benjamin W. Remy who, with R. A. Kelley, on the 3d day of April, 1850, made an affidavit before Daniel St. John, a justice of the peace, of Franklin County, Indiana, that you verily believed yourselves to be the original and 1st inventors of certain im-
421 provements in seed-planters described in the specifications annexed hereto, and, on the 4th day of June, 1850, filed in the Patent-Office of the United States an application for a patent thereof, accompanying said application with a specification, and drawings, and model therefor?

Ans. I am the same Benjamin W. Remy who, with R. A. Kelley, on the 3d day of Ap'l, 1850, made an affidavit before Daniel St. John, such justice of the peace in and for said county, stating that we verily believed ourselves to be the original and first inventors of certain improvements in seed-planters, as described in the specifications & drawings annexed hereto, which I hereby make a part of my deposition, marked Exhibit "A." I am the same Benjamin W. Remy who, with said R. A. Kelley, *who*, on the 4th day of June, 1850, filed in the Patent-Office of the United States an application for a patent therefor, accompanying said application with said specifications, and drawings, and model therefor. Said specification and drawings are the same that are annexed hereto, marked Exhibit "A," and made a part of my deposition herein.

422 Ques. 4. State whether or not you ever made a full-sized working-machine for planting corn; and if so, describe the plan and principle of the machine, and wherein it resembled or differed from the said model, and drawings, and specifications aforesaid; and when and where you so made it. Describe it minutely and with particularity.

Ans. I did make a full-sized working-machine for planting corn. The plan of said machine was the same as the plan represented in the drawings at Figure 1, which drawings are attached hereto, and made a part of my deposition, (as above stated,) with the exception of the pulleys, and band, and crooked lever for raising the harrow. The said full-sized planter had a strait lever for the raising of the harrow and planters, and no pulleys or band. The model had a crooked lever; had pulleys and a band. Said full-sized machine had a roller composed of iron bars and heads. It had a seat mounted upon it for a driver to

423 sit in. It had a square frame-work composed of four pieces in which the said roller was placed—in front of said roller was another frame that passed inside of the roller-frame in which there was harrow-teeth placed. The harrow-frame was composed of three pieces. Inside of the side-pieces of the harrow-frame was another frame to which the seed-planters and tongue were attached. The three different frames above described were connected or joined together by a bolt near the ends of the said frames so that each part could fit the unevenness of the ground. The harrow and planters were raised out of the ground by a strai't lever used by the driver. This is a full description of the plan and principle of said full-sized machine as I can give. It has been so long, I have forgotten some of the particulars. I made said full-sized machine in the town of Brookville, Indiana, in the year 1849.

Quest. 5. State whether you ever put the said working machine into practical operation; and if so, when, and where, how much work did you do with it, and did it or not prove a practical working machine,
424 and describe its practical operation.

Ans. 5. I did put it in practical operation, I think, in the year 1849, near Brookville, in Brookville Township, in said county. I planted five acres of corn with said machine. I dropped it, and Edward Burgess drove the machine. It planted well. We planted said five acres of ground in three or four hours. We planted two rows at a time, and did it well. The corn so planted came up nicely. It came up better than any other corn planted on the farm that year. It was even, and was cultivated both ways conveniently. In the corn or seed box was a small roller with holes in it to receive the seed-corn—through the roller there passed a rod with a crank on the end of it; to that (the crank) was attached a pitman which passed up to a crooked rod above the seed-boxes, which was operated by an oscil'ating motion done by the drop'er, or the one that worked the crank.

Quest. 6. State whether or not the seeding-teeth, as well as the
425 harrow-teeth, were raised out of the ground by the lever, or did the band prevent the seeding-teeth from being raised out of the ground by said lever.

Ans. 6. I do not recollect the particulars in reference to the band, but I think the seeding-teeth, as well as the harrow-teeth, were both raised out of the ground by the lever, to the best of my recollection. I am satisfied that the seeding-teeth and harrow-teeth were raised out of the ground by the lever.

Quest. 7. Did you or not operate said machine by hand? If so, did you then employ any band, as indicated in the model? If not, what arrangement was substituted? Describe its construction and operation and where did you so operate it. Was it or not a cheek-row planter?

Ans. 7. I did operate said machine by hand. I did not employ any band, as indicated in the model, and never did employ such band. Said machine was a cheek-row planter.

426 Quest. 8. State whether or not there was a place where the operator of seeding-devices could ride or sit, while running the seeding-devices by hand; and, if so, where?

Ans. 8. There was none. I do not recollect of any such place.

Quest. 9. Not proper. (Wit's says drop'er could not ride on the machine.)

Ans. 9.

Quest. 10. Did you ever exhibit the said machine in practical operation to any of your neighbors? If so, who, and when, and where?

Ans. 10. I never did exhibit said machine in practical operation to any but the driver, who was Edward Burgess.

Quest. 11. Did you or not ever obtain a patent for said invention?

Ans. 11. I never did. I withdrew the application.

Quest. 12. Did you or not make more than one full-sized working machine; and, if not, why not? State your reasons fully. State
427 whether there was a universal or good demand in your vicinity for corn-planting machines, operated by two horses to plant two rows, at the time you made your said machine. And has there been any demand since for that class of machines? What was then, and what is now, the average size of corn-fields in your vicinity?

Ans. 12. I did not make but the one machine; there was no demand for them. This said county is a hilly, broken, rough country, and corn-fields are usually small. The fields were small at the time I made said machine, and are still small. At that time and at the present the size of corn-fields ranged from five to fifteen acres in this county. At the time I made said machine there was not, and never has been up to this time, but little or no demand for such machines as herein described. Such machines as the said machine that I made, although good, could not be used to any advantage in this vicinity; consequently, I did not make any more of them. It would not pay.

Quest. 13. Did you or not make a machine or machines different
428 in plan and principle from the model and machine above described; and, if so, how many did you so make, when, and where; and indicate the construction and operation thereof particularly.

Ans. 13. I did make quite a number of other machines; do not know how many. They were different in the plan and principle from the machine above described or indicated. They were one-horse machines. The drop'ing was done nearly, if not quite, on the same principle of the one described, and with which I worked. They were made by me at Brookville, Indiana, about the year 1849. No other person had any hand in making them but myself.

Quest. 14. Do you know of any other matter touching the matter in controversy in this cause, that may tend to the advantage of the defendants, in addition to what you have stated? If so, state the same as fully and as carefully as if you had been particularly interrogated in reference thereto.

Ans. 14. I believe I have told all that I now recollect, that would be any advantage to the defendants in this case.

429 Cross-interrogatories propounded by me, the said William H. Jones, to said Benjamin W. Remy, and his answers thereto.

Quest. 1. Have you been heretofore examined as a witness in this matter in controversy in this suit, in the case of George W. Brown vs. Ives McGaffery et al., about the 19th day of February, 1866?

Ans. 1. I have. I think it was about that time.

Quest. 2. In answer to the 7th direct interrogatory you say you worked said machine by hand. State whether the machine you so worked by hand was constructed substantially as and after the plan and description of the machine described and set forth in the specifications and patent of yourself and one Kelley, dated about June 18th, 1850. Was it constructed and geared for and as a self-operating machine as described in said patent specifications? What alterations did you make in order to work it by hand, and how did you work said ma-

chine; did you ever work more than one machine by hand; who
430 owned the machine or machines; did you ever work such machine by hand more than once, and how much ground did you plant, and when was it; what was done with said machine or machines afterwards; did such machine or machine' subsequently continue to be used as a self-operating planting planter or drill; when you worked said machine by hand did you or the man operating the seeding devices walk by the side of the machine and work said seeding-devices by a temporary handle or crank, or how was it done; and when did you first try said experiment?

Ans. 2. The machine was built for an experiment, but substantial enough to do good work. The general principles and plan was the same, with the exception of the belt or band and the crooked lever. With that exception the two machines were alike. It was not geared for a self-operating machine. I used a crank lever, worked by hand with an oscillating motion, to drop the corn. I never worked it any other way, only by hand. I never did work more than one ma-
431 chine of that kind by hand. I owned the machine. I never used it only to plant five acres of corn. I planted said five acres in 1849. It, the machine, was torn to pieces some time afterwards. I know not how long afterwards. It was not used only for the planting of said five acres of corn to my knowledge. When I worked said machine I walked by the side of it and worked said seeding-device by a crank or handle. Said crank or handle was not temporary, any more than the machine. It was done by an oscillating motion. I tried said experiment in Brookville Township, Franklin County, Indiana, in the year 1849.

Ques. 3. Improper; the 8th direct was not answered in the affirmative.

Ans. 3. There was not a place for the drop'er to ride. I did not get a patent. I withdrew the application.

Quest. 4. Was the manufacture of machines such as described by Remy & Kelley abandoned, and when? If not, state how many of such machines within your knowledge have been made and sold in each year since 1850.

432 Ans. 4. There never was any manufactured except the one described by Remy and Kelley, to my knowledge. There was not a demand for such machines in the vicinity; the fields were too small to work them to advantage.

And further deponent saith not.

BENJAMIN W. REMY.

433 Said EDWARD BURGESS, who, after he had been duly sworn according to law by me, as stated in the caption of the foregoing deposition, to tell the truth, the whole truth, and nothing but the truth, in behalf of the defendants, wherein George W. Brown is plaintiff and George J. Bergen et al. are defendants, did thereupon depose, testify, and say in relation to the matter in controversy, as follows, in answer to the interrogatories and cross-interrogatories propounded by me.

Quest. 1. What is your name, age, residence, and occupation?

Ans. 1. My name is Edward Burgess. My age is 38 years. My occupation is that of a laborer.

Quest. 2. Are you acquainted with Benjamin W. Remy, of Franklin County, Indiana? and if so, how long have you been acquainted with him?

Ans. 2. I am. I have known him for twenty-five years last past.

Quest. 3. Do you know of said Remy having a corn-planter in his pos'session and use? If so, when and where did you first see it in use, and describe it as well as you can.

434 Ans. 3. I know of said Remy having a corn-planter in his pos'session and use. It was about 18 years ago, this spring past; I think it was in the year 1849. I was working for one Henry Remy in this county, by the month, and said Benjamin W. Remy came over and brought his corn-planter with him to plant a five-acre field. We commenced planting with his corn-planter. I set in a little seat over the roller, and drove the team; said Benjamin W. Remy walked by the side, or near behind, and worked a crank. The ground was very rough; it took us the larger part of a half day to plant said five acres; the planter did a good job; the work was done well; the corn came up nicely, and was cultivated both ways without breaking down the corn more than is usually done. Said corn-planter that we used planted two rows at one time, and was drawn by two horses; it had two flukes (I would call them) that made the furrows, the corn was drop'ed in said furrows right after and near to the flukes by the working of a crank which was worked by said Remy, the place where the seed-corn was con-

435 tained according to my recollection was in a little square box situated just behind the two flukes, large enough to hold from a half peck to a peck of corn, and in the bottom of said box was a little roller with something like holes or scre'ns in it, which was to ga'ge, and did ga'ge the drop'ing of the corn by means of the working of said crank which drop'ed the corn. I think that the corn was covered either by means of little flukes or teeth, or was drop'ed so near to the front large flukes that the dirt of the furrows (that they made) in trickling down covered it. It has been so long ago I cannot be positive in every particular, and cannot say exactly, now, how the corn was covered. I cannot give a particular description of said machine. In the 1st place there was a square frame which contained the large roller which rolled the ground. I do not recollect what kind of a frame the harrow-teeth were in; it is my impression that they were in a three-cornered frame, or in a strai't piece across, but cannot be positive to either; they harrowed the ground just after the corn was drop'ed. With said machine we

436 furrowed the ground, drop'ed the corn, covered it, harrowed the ground, and lastly, rolled the ground; it did it well and nicely. The corn was drop'ed, as I stated before, by means of a crank worked by hand. I think there was a lever which raised the harrow-teeth, and the teeth through which the seed-corn passed, out of the ground when it was necessary, that by means of this lever the driver could work said lever and raise said harrow-teeth and seed-teeth out of the ground when necessary. I do not recollect of seeing any band about said machine.

Quest. 4. State whether or not you assisted at any time in operating said planter, and if so, when and where.

Ans. 4. I did; at time and place above stated, when we planted five acres of corn, about 18 years ago.

Quest. 5. Was it or not a practical machine? And if so, did it do the work well or ill, and how much work did you see it do?

Ans. 5. It was a good practical working machine as far as I saw

437 it tried; the planting of said five acres of corn was all the work I ever saw it do.

Quest. 6. Was it or not a check-row planter operating by hand; and if so, did it plant in check-rows well or ill?

Ans. 6. It was a check-row planter, and the drop'ing was done by hand, that is, by a person working a crank as above described. It did

its work well; it was a good job. I tended the field of corn so planted by said machine or planter. The corn did well. I cultivated it both ways very conveniently. It was a good check-row planter.

Quest. 7. Was there any convenience for raising the seeding-teeth out of the ground in turning around? If so, describe it, and how it worked or operated.

Ans. 7. There was. It was done by a lever which could be control'ed by the driver. I think said lever run to the right side of the driver, at some little distance behind. I do not recollect whether it had to be pulled on or raised up when we wanted to raise the teeth out of the ground.

438 Quest. 8. Was there or not a place on that machine where the drop'er of the seeding-devices could sit or stand?

Ans. 9. I do not recollect that there was a place on the machine for the drop'er to sit or stand. I do not think that there was such a place on said machine at that time; there might have been a seat fixed to it afterwards, but I never saw or heard of one on it aside from the seat that the driver sit in.

Quest. 10. (Not proper, as it refers to the seat, and that was answered in the negative.)

Ans. 10. Reamy, the drop'er, walked. He could see the previous-made furrows, I should think, and drop the corn into them.

Quest. 11. Do you know of any other matter or thing touching the matter in controversy in this cause that may tend to the advantage of the defendants in addition to what you have already stated? If so state the same as fully and as large as if you had been particularly interrogated in reference thereto.

439 Ans. 11. I do not know anything more than I have stated concerning this matter, as far as I now recollect, that would be any interest or advantage to you.

Cross-interrogatories propounded to said Edward Burgess by me, and his answers thereto.

Quest. 1. Was the machine referred to in your direct examination and answers constructed by said Remy & Kelley, as described in their patent and the specifications annexed; and was it understood and claimed by them to be the same machine, and to combine a harrow, a seed-planter or drill, with a lever to raise the harrow out of the ground? Was it a self-operating machine working with a belt and gearing upon the journal of the drum or roller behind, and upon a journal at the end of the seed-draft.

Ans. 1. The machine refer'ed to in my direct examination was constructed by said Benjamin W. Remy, and I have understood since that time that one Kelley had a hand in it; that they were in partnership in said machine. It is the same machine that is described

440 in the specifications herein, with prehaps some few changes. There may be some difference between the machine described in the specifications and the one that I worked with. I do not know much about what was or what is contained in the specifications. The machine that I helped to plant said five acres of corn I then understood and still understand that said Reamy claimed to be the same machine that he had filed specifications of for a patent therefor. I understood he always claimed said machine to be the one that he wished to procure a patent for. I then understood that said machine described in his specifications combined a harrow, a seed-planter, with a lever to

raise the harrow-teeth out of the ground. The machine that I worked with in planting said five acres of corn combined a harrow and a seed-planter, with a lever to raise the harrow-teeth out of the ground. It was a self-operating machine, aside from working the said crank by hand and said lever, in order to drop the corn and raise the teeth.
441 I now refer to the machine which I refer'ed to in my chief examination and with which I worked in planting said five acres. I do not recollect that there was any belt about said working machine. I have always understood that the machine that Reamy and I planted the five acres of corn with was the machine that he filed specifications of, in order to obtain a patent therefor. I have told all that I know about said machine as far as I know or now recollect.

And further deponent saith not.

EDWARD BURGESS.

STATE OF INDIANA,
County of Franklin, ss:

I, William H. Jones, a notary public within and for said county of Franklin and State of Indiana, in the district of Indiana of the United States of America, do hereby certify that the above Benjamin W. Remy and Edward Burgess were, by me, such notary public, first duly
442 sworn according to law to testify the truth, the whole truth, and nothing but the truth relating to the matter in controversy in said cause; that their depositions were reduced to writing in answer to the foregoing interrogatories presented to me by the defendants in said cause, and the cross-interrogatories presented to me by the plaintiff in said cause were respectfully propounded by me to said witnesses in their order, and their depositions reduced to writing by me, such notary public, in the presence of the witnesses who subscribed to the same; that neither the defendants or the adverse party was present in person or by attorney, but according to an agreement between the defendants and plaintiff in the above-entitled cause, and pursuant to the notice and commission attached hereto, I proceeded to take said depositions at my office, in the town of Brookville, county of Franklin, and State of Indiana, in the district of Indiana of the United States, on Saturday, the 13th day of July, A. D. 1867, between the hours of 10 o'clock a. m. and 6 o'clock p. m. of said day; and said depositions were
443 taken by me in answer to each interrogatory attached hereto, as far as it related to said cause, and reduced to writing in regular order, and signed and sworn to by said witnesses in my presence; and I have retained said depositions in my possession for the purpose of transmitting the same by me to the clerk of the court for which the same was taken.

Witness my hand and notarial seal this 13th day of July, A. D. 1867.

[SEAL.] WILLIAM H. JONES,
Notary Public of Franklin County, Indiana.

[I. rev. stamp.]

444 Exhibit "A," which is made a part of the deposition of Benjamin W. Remy, whose deposition is attached hereto.

WILLIAM H. JONES,
Notary Public.

EXHIBIT "A."

To the Commissioner of Patents:

The petition of Benjamin W. Remy, of Brookville, in the county of Franklin, and State of Indiana, and Rubin A. Kelley, of Hope, in the

county of Bartholamew, and State of Indiana, respectfully represent:

That they have made certain new and useful improvements in the seed-planter, which they verily believe have not been known or used prior to the invention thereof by your petitioners. They therefore pray that letters-patent of the United States may be granted to them therefor, vesting in them and their legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided, they having paid thirty dollars into the Treasury of the United States, and complied with
445 other provisions of said act; and they do hereby authorize and empower David J. Bishop, of Washington City, D. C., to act as their agent in presenting this application, altering or withdrawing the same, and to receive back any monies which may be due us on said withdrawal.

BENJAMIN W. REMY.
REUBEN A. KELLEY.

446 To all whom it may concern:

Be it known that we, Benjamin W. Remy, of Brookville, in the county of Franklin and State of Indiana, and Reuben A. Kelley, of Hope, in the county of Bartholomew and State of Indiana, have made certain new and useful improvements in the seed-planter. And we do hereby declare that the following is a full, clear, and exact description of their nature and construction, reference being had to the accompanying drawings, making part of this specification, in which Fig. 1 is a plan of the machine; Fig. 2, an elevation of the rear end, Fig. 3, a vertical longitudinal section taken at the line X, X, of Fig. 1.

Fig. 4, a side view. Fig. 5, an end view of the roller, and Fig. 6, a longitudinal section thereof.

The same letters refer to like parts in each of the figures.

The nature of our invention consists, first, in so constructing and combining a harrow with the apparatus for dropping the grain
447 that the harrow can be readily raised and lowered at the will of the operator by means of an iron or other rod, one end of which is made to act on the rear end of the harrow and the other end serving as a handle for the driver to elevate or depress it.

And the second part of our invention consists in so constructing and comb'ing with a feeding-apparatus, a roller formed of end and intermediate heads or wheels, having rods passing through them near their periphery for the purpose of breaking the clods of earth, the end and centre heads being so attached to a shaft that when the roller is not wanted to break the lumps of earth, they can be removed with the rods, and the end-heads or wheels serve as rollers for the seeder.

In the accompanying drawings, *a* represents the frame of a seed-planter on which are arranged two hoppers, (*b b*,) for the reception of the seed. The dropping of the seed may be done either by means of a sliding-valve or roller placed at the bottom of each of the hoppers, with a hole in the roller to conduct the grain down to the earth, but as
448 the manner of dropping the seed forms no part of our invention we do not deem it necessary to give a particular description of this part. The frame of the harrow consists of two side-pieces (C C) and a rear end piece, (*d*.) The forward ends of the side-pieces turn freely on an iron brace, (*e*,) which extends across the frame of the seeding-apparatus, and to which the tongue of the seeder is attached, and the rear end-piece (*d*) is provided with the usual teeth for covering the seed that has been dropped from the feeding-apparatus.

For the purpose of raising the rear end of the harrow whenever necessary a rod, (*f*,) is passed between the bottom of the seat for the driver and the cross-framing of the seeder, and turning freely between them, one end of which rod where it projects in front of the seat, being bent at right-angles and then carried down a little distance below the under face of the rear end-piece, (*d*,) where it is again bent and brough' in direct contact with the said end-piece; the other end of the rod (*f*) is carried up behind the seat far enough to be bent over in front so that the
449 driver can readily operate it. The form we have given this rod (*f*) is shown distinctly in Fig. (3) of the drawings, and it will be obvious that when the operator turns the end that projects up from behind his seat, either to one or the other side, it will cause the other end to elevate the rear of the harrow and thus free the teeth from the earth. The roller for breaking up the lumps of earth is situated at the rear end of the seeding-ap'aratus and consists of cast-iron end-heads or wheels, with intermediate heads or wheels of the same material, attached to a shaft which has its bearings in the frame-work (*a*) of the seeder, said heads or wheels having a series of square other formed iron-rods passing through them near their periphery, which as the roller revolves, effectnally crush the clods of earth.

The shaft (*g*) of this roller should be made square, and at one end has attached to it a wheel, (*h*.) This wheel, as well as all the rest on the shaft, is provided with any convenient number of holes, each
450 wheel having the same number and at equal distances apart, near its periphery to receive one end of a series of round or other formed iron rods, (*i*,) which are provided with a screw-thread at each end. These rods (*i*) are inserted in the holes in the wheel (*h*) and firmly secured to it by nuts, and then any number of intermediate heads or wheels (*j*) may be slipt on the shaft (*g*) and rods (*i*,) but two in general will be found sufficient. The other end-wheel (*k*) is then placed on the shaft, and the rods passed through the holes in it, and they are then secured by nuts as at the other end. The shaft (*g*) is of the usual size between the wheels (*h* & *k*,) and at the end where the wheel (*k*) is attached it is made a little less in size, and made round, and thus forms a shoulder against which the wheel bears, and at the outer face of the wheel the shaft has a thread cut on it for a little distance, which receives a nut, (*l*,) and thus the wheel is held secure. This is clearly shown in Fig. 6 of the accompanying drawings. When the roller is not wanted to crush the clods of earth, the end-wheel (*c*) can be re-
451 moved, the rods (*i*) and intermediate center heads or wheels (*j*) which form the roller, may be slipt off the shaft, the wheel (*k*) then replaced, and thus the end-wheels be made to answer for the seed-planter. The shaft (*g*) has its bearings in the rear end of the frame (*a*) of the seeding-apparatus, as stated before, one end of which projects some distance beyond the frame, (*a*,) and carries a pulley (*m*) from which a band passes to another pulley, (*n*,) on the shaft which operates rollers in the hoppers (*b b*) to drop the grain, but as the arrangement for dropping the grain forms no part of our invention, we have not deemed it necessary to represent the rollers in the drawings, as any other mode may be used. Having thus fully described the nature and construction of our improvements, what we claim as new therein, and desire to secure by letters-patent is, first, so constructing and combining a harrow with the frame-work of a seeding-apparatus that it can be readily elevated and lowered at the will of the operator substantially as herein described.

452 And secondly, we claim so constructing and combining with a seeding-apparatus, a roller composed of end and intermediate heads or wheels, having square or other formed iron rods passing through them near their periphery, and bolted to the outer face of each end or head wheel substantially as described, for the purpose of breaking up the clods of earth. The said heads or wheels being so attached to a shaft that they may be easily removed when the roller *in* not wanted to break up the lumps of earth, and the end heads or wheels serve as rollers for the seeding-apparatus, substantially in the manner herein described and made known.

BENJAMIN W. REMY.
REUBEN A. KELLEY.

N. McCROOKSHANK, witness.
DANIEL ST. JOHN, witness.

453 STATE OF INDIANA,
Franklin County, ss:

Personally appeared, on this third day of April, A. D. 1850, before me, the subscriber, a justice of the peace in and for said county and State, the within-named Benjamin W. Remy and Reuben A. Kelley, and made solemn oath, according to law, that they verily believe themselves to be the original and first inventors of the within-described improvements in the seed-planter, and that they do not know or believe the same were ever before used or known; and that they are citizens of the United States.

BENJAMIN W. REMY.
REUBEN A. KELLEY.

Sworn to and subscribed before me this 3d day of April, 1850.
DANIEL ST. JOHN,
Justice of the Peace.

454 To the Commissioner of Patents:

SIR: I hereby withdraw my application for a patent for a' improvement in the seed-planter now in your office, and request that twenty dollars may be refunded to , agreeable to an act of Congress in such cases made and provided.

18

D. J. BISHOP,
Attorney for B. W. Remy & R. A. Kelley.

455 PATENT-OFFICE, 18 .

Please date, sign, and return the above receipt, and twenty dollars will be paid to your order at this office, or remitted by mail, in gold, as you may direct.

THOMAS EUBANK,
Commissioner of Patents.

456 No. 6487.] JULY 9, 1850.

In conformity to an act of Congress, entitled "An act to promote the progress of the useful arts," approved 4th of July, 1836, I have received of B. W. Remy & R. A. Kelley, Brookville, Hope , Indiana, thirty dollars, which sum has been placed to the credit of my account

in the Treasury U. S., D. C., under the date of 4 June, 1850, and for which I have signed a receipt for a patent seed-planter.

W. SELDEN,
Treasurer of the United States.

Registered.
J. C. H.

TOWNSEND HAINES,
Register of the Treasury.

457 1138.] JUNE 4, '50.

No. . B. W. Remy, of Brookville, and R. A. Kelly, of Hope County, of , State of Indiana, seed-planter.

Rec'd, June 4, '50:
Petition, "
Affidavit, "
Specification, "
2. Drawing, "
Model, "
Cert. dep.
1. Cash, $30, " "
Examined.
2. Issue.
4. Patented, 18.
Recorded vol. , page .
D. J. Bishop, Wash'n, D. C.
Cash to Bishop, 24 Aug., 1850. S.

23-181

Supreme Court of the United States,

DECEMBER TERM, 1872.

GEORGE W. BROWN,
Appellant,
vs.
RUFUS B. GUILD, Executor, etc., of George I. Bergen, deceased,
and
FREDERICK P. SISSON,
Appellees.

Appeal from the Circuit Court of the U. S. for the Northern District of Illinois.

ARGUMENT OF GOOKINS & ROBERTS,

For Appellees.

OCT. 1872

Supreme Court of the United States,

DECEMBER TERM, 1872.

GEORGE W. BROWN,
Appellant,
vs.
RUFUS B. GUILD, as Executor of George I. Bergen, deceased, *et al.*,
Appellees.

Appeal from the Circuit Court of the U. S. for the Northern District of Illinois.

SAME,
vs.
JAS. SELBY *et al.*

Appeal from the Circuit Court of the U. S. for the Northern District of Illinois.

ARGUMENT OF GOOKINS & ROBERTS FOR APPELLEES.

STATEMENT OF THE CAUSES.

The appellant, Geo. W. Brown, about 1864, filed his three separate bills in Chancery in the Circuit Court of the United States for the Northern District of Illinois, one against George I. Bergen and Frederick P. Sisson, of Galesburg, Ill., one against James Selby and others, of Peoria, Ill., and one against Charles B. Brown and Ives W. McGaffy, of Chicago, Ill., and also filed his bill in the Circuit Court for the Southern District of Illinois, against Jno. C. Lamb and Geo. D. Haworth, alleging, in

substance, that defendants were manufacturing and selling seed-planting machines which were infringements of his reissued patents, and praying an injunction and account. Defendants answered, denying the allegations of the bills, and alleging, substantially, that they were manufacturing and selling seed-planting machines under letters patent granted them respectively, and that the patents of the plaintiff were void for the reasons set forth.

A large amount of testimony was taken, showing the state of the art and the dates of the alleged inventions of plaintiff, and to save expense, and for convenience, it was stipulated that the testimony taken in either case (so far as applicable) should be used in the others, as they involved substantially the same questions. By agreement the causes were all argued at the same time, before their Honors Judges DRUMMOND of the Northern and TREAT of the Southern District. The judgment of the Court was for defendants, and all the bills were dismissed. They are reported in 4 Fisher Patent Reports. Two of the causes only are here by appeal, and we propose by consent of the Court to argue them together, and for convenience our references will be to the printed record in the first in order on the docket, *Brown* v. *Guild et al.*

PATENTS OF APPELLANT.

The patents of appellant consist of two series. Five of them reissued Sept. 11, 1860, Nos. 1036 to 1040, and five reissued Dec. 11, 1860, Nos. 1091 to 1095. These ten patents are the offshoots of two patents only. One issued in 1853 and the other in 1855. The first was surrendered and reissued in 1858, and again in 1860, and the second in 1857, and again in 1860, so that the patents in question have been reissued a second time.

We think it will clearly appear that these reissues were obtained to "stop the course of inventors," and not in good faith for omissions arising from "inadvertence, accident or mistake." That the claims now set up were

the inventions of others, and so known to be by appellant, and most of them were not contained in the original or in the first reissue, nor so much as faintly hinted at or shadowed forth. That the new art of expanding patents has been carried by appellant in these reissues to a point rarely reached by those patentees who by this mode have sought to suppress *bona fide* inventions.

These reissues, while apparently in the *title* "improvements in *seed* planters," are really in the *body* of the specifications for *corn* planters. Evidently the purpose in this is to withdraw attention from the machines in use for planting the smaller grains which are described in agricultural works, and set forth in Johnson's Farmers' Encyclopædia, and the English patents produced and made part of the record in these causes.

Description of Appellant's Machine.

The machine of appellant may be described generally as composed of frame work, having two runners which support it, followed by two rollers or wheels. The office of the runners is to open out a furrow into which the seed is dropped. In the heel of the runner is a seed duct which conveys the grain into the furrow, and the rollers following in the line of the runners, press down the earth, and thus cover the seed. A joint renders the machine flexible, so that the runners may be raised out of the ground in turning, and both runners and rollers accommodate themselves independently to the inequalities of the ground. A seed hopper immediately over the heel of the runner contains the grain. A valve in the hopper, and also, in the second form of his machine, in the seed duct, connected by a hand lever to operate them, pass measured quantities of corn. A seat is provided for the dropman in front, and also, in the second form of his machines, for the driver in the rear. These are the several elements or rudimental parts of the corn-planting machine, all of which, we allege, were in various com-

binations in public use, before the supposed inventions of the appellant.

Our defence is—

1st. THE PATENTS ARE INVALID; BUT IF VALID—

2nd. WE DO NOT INFRINGE.

Under the first head we say these patents are invalid for divers reasons:

First. Because, professing to be *improvements* in seed planters, they do not clearly set forth in what the improvement consists, nor distinguish what is new from what is old.

Second. The claim in some of the reissues is to an effect or result, and not the means by which it is produced.

Third. The pretended inventions were old and in public use.

Fourth. The patents were procured by fraud.

In proceeding to discuss our two leading propositions in order, we think it will conduce to a more intelligent apprehension of the subject, if we give a rapid sketch of the state of the art.

STATE OF THE ART.

This appears in the answers of appellees.

That portion of Johnson's Farmers' Encyclopædia which describes the English seed drills (pp. 390 to 397), is in evidence.

English Machines.

These were:—1. Cook's drill. 2. The Suffolk corn and manure drill. 3. The Bedfordshire drill. 4. Lord Western's drill. 5. Hornsby's patent drop drill, also described in letters patent, of which a certified copy is in evidence. 6. Richards' drop drill, of which, copy of patent is produced. These documents, by some mistake, are not printed.

The English drills are important by reason of the fact that the appellant claims broadly a *joint* for raising the runners out of the ground in turning or in passing over obstructions; also the *runner* for opening the furrow; also, mounting the dropman and driver on the machine. It will be seen that these English drills contain this element of the joint to give independent action to the runners or seeding tubes, which were indifferently used. It was a necessity in the construction of the machine so obvious that all contain it; the teeth or runners, if immovable or inflexible, would, on meeting an obstruction, be broken. Some mode of flexure was therefore required for the successful operation of these machines, and the joint was the natural and obvious provision suggested to the commonest understanding. The operator also rode on the machine.

Joab Moffit's Machine.

This was made and used for planting corn, at and near Richmond, Ross Co., Ohio, in 1834.

It contained two runners, followed by two wheels or rollers supporting a frame work having a hinge joint to give flexibility, and a seeding device operated by the hand of the dropman riding on the machine, and planted in check rows.

R. S. Thomas' Machine.

In 1841, R. S. Thomas applied for a patent for a cotton planter. It consisted of two frames, supported in front on wheels, and a *hinged* frame in rear, which operated as a coverer of the seed. The seeding apparatus was connected with the forward part and the rear coverer.

Jacob Mumma's Machine.

In 1849, one Jacob Mumma obtained a patent for a seed drill. The rear part of the frame is *jointed*, having a lever attached, by means of which the seeding device is raised from the ground, in order to transport it from place to place.

Henry Todd's Machine.

In December, 1843, Henry Todd obtained a patent for a corn planter. A model of the machine is produced. It contains the runner to open the furrow, so constructed as to mount up and over and climb intervening obstacles, and it supports the frame. In the rear of this is the roller, whose office it is to cover the seed. This is connected to the frame by a joint, so that the forward part of the machine may be raised or lowered without affecting the rear, and the roller may rise and fall without disturbing the runner. This feature of independent action between runners and rollers, secured by means of the hinge joint, is much dwelt on in appellant's specification, and regarded by one of his counsel below as the *key* to the invention. The two wings in rear of the runner close the earth over the furrow in a ridge shape, and the roller presses it down, thus completing the work. Another feature is, that by pressing on the handles in rear, as a lever, the runner can be raised in passing obstructions.

JAMES ABBOTT'S MACHINES.

In 1846, James Abbott, of Brimfield, Peoria Co., Ill., made a corn planter having two *coulters*, followed by two rollers. These supported a frame work. The coulters opened the furrow, and the rollers covered the grain. This machine he abandoned, because the coulters clogged with corn stalks and weeds, and the dropping apparatus was unsatisfactory. The driver rode on the machine. A model is produced. Here we have the idea of covering rollers and the driver *on* the machine.

In the winter of 1847–8, he made another machine containing two runners. This runner in every respect anticipates that of appellant's; it fulfills all the conditions of appellant's as contained in his patent No. 1037. A model is produced, and also one of the runners taken from this machine is produced as an exhibit; it is made of wood shod with iron. This machine was completed and used for planting as early as the spring of 1848, and continued for four successive years to be so used, and proved a practical working machine. It did not contain rollers, but another device was employed to cover the corn. It, however, contained the following elements:

1st. A runner substantially like appellant's.

2nd. A seat for the driver.

3rd. The driver while riding could by changing his position raise or depress the runners.

In 1852 he thinks, and certainly not later than 1853, he made a third form of corn planter. This contained two runners followed by two covering rollers, with a joint in the tongue back of the seed boxes by which the weight of the driver on the rear would raise the runners. These were steel runners, but shaped like those of the former machine.

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In December, 1843, Henry Todd obtained a patent for a corn planter. A model of the machine is produced. It contains the runner to open the furrow, so constructed as to mount up and over and climb intervening obstacles, and it supports the frame. In the rear of this is the roller, whose office it is to cover the seed. This is connected to the frame by a joint, so that the forward part of the machine may be raised or lowered without affecting the rear, and the roller may rise and fall without disturbing the runner. This feature of independent action between runners and rollers, secured by means of the hinge joint, is much dwelt on in appellant's specification, and regarded by one of his counsel below as the *key* to the invention. The two wings in rear of the runner close the earth over the furrow in a ridge shape, and the roller presses it down, thus completing the work. Another feature is, that by pressing on the handles in rear, as a lever, the runner can be raised in passing obstructions.

JAMES ABBOTT'S MACHINES.

In 1846, James Abbott, of Brimfield, Peoria Co., Ill., made a corn planter having two *coulters*, followed by two rollers. These supported a frame work. The coulters opened the furrow, and the rollers covered the grain. This machine he abandoned, because the coulters clogged with corn stalks and weeds, and the dropping apparatus was unsatisfactory. The driver rode on the machine. A model is produced. Here we have the idea of covering rollers and the driver *on* the machine.

In the winter of 1847–8, he made another machine containing two runners. This runner in every respect anticipates that of appellant's; it fulfills all the conditions of appellant's as contained in his patent No. 1037. A model is produced, and also one of the runners taken from this machine is produced as an exhibit; it is made of wood shod with iron. This machine was completed and used for planting as early as the spring of 1848, and continued for four successive years to be so used, and proved a practical working machine. It did not contain rollers, but another device was employed to cover the corn. It, however, contained the following elements:

1st. A runner substantially like appellant's.

2nd. A seat for the driver.

3rd. The driver while riding could by changing his position raise or depress the runners.

In 1852 he thinks, and certainly not later than 1853, he made a third form of corn planter. This contained two runners followed by two covering rollers, with a joint in the tongue back of the seed boxes by which the weight of the driver on the rear would raise the runners. These were steel runners, but shaped like those of the former machine.

JOB BROWN'S MACHINES.

1st. In the Spring of 1849, Job Brown, of Lawn Ridge, Peoria county, Ill., made a machine for planting corn with one *iron* runner. It was successfully used thenceforward until worn out. This runner is made an exhibit.

2nd. In February, 1850, he made another machine containing two runners *of wood*, followed by two rollers to cover the grain; it also had a wheel in the middle.

3rd. In the Spring of 1850, he made and used another machine having two runners *of steel*, followed by two rollers to cover; on this the dropman and driver both rode. This was designed to plant corn in check rows, and planted corn successfully for the neighbors.

4th. In the Spring of 1851, and before May, he made and used another machine, and planted upwards of two hundred acres with it that Spring; it contained *three* runners—was a *check row* planter. He applied for a patent December 31st, 1852. The model is an exhibit. He made and sold forty of these machines. The dropman and driver both rode on this machine.

It will be observed—

1st. The runner of Job Brown contains all the qualities of appellant's.

2nd. That he invented a hand or *check row planter*, as distinguished from an automatic planter.

3rd. It was provided with seats for dropman and driver, "so that each could attend to his particular duty without interfering with the other."

4th. He made a machine containing two runners followed by two rollers supporting a frame work.

5th. These machines were all *corn* planters, and anticipate the appellant's.

Remy & Kelly Machine.

This was invented and successfully used to plant corn in the Spring of 1849. It was so used by Benj. W. Remy and Edward Burgess in Franklin county, Indiana. June 4th, 1850, they (R. & K.) made application for a patent; filed model and specification. A copy of that model is produced and sworn to be a substantial copy by Wm. C. Dodge, a late examiner in the patent office.

This machine contains two frames. To the front frame are suspended seeding teeth; to the rear is attached the rolling apparatus. These frames are independent in their action, the connection between them being formed by means of a hinge in front. It contains a seat for the driver, and a lever is provided by which the driver raises the seeding teeth from the ground. When these seeding teeth are thus raised, they are supported on the point of the tongue and the rear part of the machine substantially as in the machine of appellant's, and in this particular anticipate him.

In the model the device for dropping the grain is automatic; but Remy and Burgess swear that the full size machine with which they planted was constructed to operate by hand, and was a *check row planter* and planted successfully in check rows.

We remark upon this machine—

1st. The driver rode.

2nd. It was a check row planter operated by hand.

3rd. It was constructed with *two* frames, having the furrow openers attached to the front, and the covering rollers to the rear, and these frames were connected by a *joint*.

4th. The frames had an independent action, and by means of this joint adjusted themselves independently to the inequalities of the ground.

5th. The front frame and seeding teeth were raised by means of a lever.

6th. It anticipates appellant's.

A pretended model is produced by appellant, showing that the seeding teeth could not be raised by the lever; but this is shown to be an incorrect model, as the harrow and seeding teeth were raised at the same time.

John Kirkman's Machine.

This machine was made and used to plant corn in the Spring of 1850, in Peoria county, Ill. It contained two runners, followed by two covering rollers. The seeding device operated automatically. The runners were made of *wood*, shod with iron. It had a seat for the driver; a joint in the tongue enabled the driver to raise or depress the runners in planting or turning around at the ends of the furrows. (Model produced.)

In the Spring of the following year, the dropping apparatus was altered, and an *iron* runner substituted for the wooden, but substantially of the same pattern. This machine operated successfully until worn out by use. This identical iron runner is produced; also a second model, showing *this form* of the machine.

We remark upon this machine—

1st. The runner is substantially the same as that of appellant's.

2nd. The machine was constructed of frame work, with two runners, followed by two covering rollers.

3rd. It contained a hinge joint, by means of which the driver riding on the machine could by moving forward press the runners into the ground, or by moving backward raise them out of the ground, in passing over obstructions, or in turning around.

4th. A seat or stand was provided for the driver.

5th. It had the lock-stop or block.

6th. It anticipates appellant's.

Charles Finn's Machine.

This is a *check row* corn *planter*, invented and operated in 1851, in Laporte county, Ind. A model is produced.

In April, 1852, he made application for a patent, filed model and specification. On this machine the dropman rode and operated the seeding device, sitting in such position as to see the previously made furrows or marks upon the ground and drop into the check rows. It had no covering rollers.

It contained a valve in the hopper and one in the seed tube, and a lever to operate them, *so* combined that two motions of the lever and arm were required at each operation of planting. This muscular motion was fatiguing. The driver also could ride.

We remark on this machine—

1st. It was a *check row* planter.

2nd. It contained—1, A valve in the hopper; 2, A valve in the seed tube; and 3, A lever to operate them.

3rd. The dropman *rode* on the machine in position to see the cross furrows and drop in check rows.

4th. A place was provided for the driver.

5th. It anticipates appellant's.

Jarvis Case's Machine.

A *corn* planter. Made in the fall and winter of 1852, and actually operated in Clark county, Ohio, in March, 1853, and patented a check row planter. Model produced.

We remark, upon this machine, that it contains—1. A valve in the hopper; 2. A valve in the seed tube; and 3. A lever to operate them by hand. So combined that one motion or force only is required at each operation of planting.

This anticipates appellant's seeding device, contained in his machine patented in 1855.

Edward P. Farley's Machine.

A *corn* planter. This man applied for a patent February 3rd, 1853. The invention was perfected within sixty days previously. The model was completed in January, 1853. The first full sized machine was made in April, 1853, and a second in August, 1853. The machine was a success; it planted successfully about one hundred acres of corn in the spring of 1854, in Laporte county, Ind.

On this machine the driver rode, and by standing or moving back or forward of the centre, could regulate the depth of the planting. The machine contained runners and wheels; and the seeding device, although intended to operate automatically, was so constructed as to be used by the hand of the person riding on the machine, and was so used occasionally. It contained the lock-stop or block. The front part of the machine was raised from the ground in turning around by means of the joint, the driver stepping to the rear of the platform.

We remark upon this machine—

1st. It was so constructed as to be used as a hand dropper, and to plant in *check rows*, and provided a place for the driver and dropman to ride, and perform their respective duties without interference.

2nd. The driver by moving forward could depress the runners in the ground, and thus plant deep, or by moving back, could plant shallow, or raise the runners from the ground in turning around.

3rd. It contained a lock-stop or block, so as to prevent the rear end from tipping too far down and incommoding the driver.

4th. It anticipates the appellant's machine patented in 1855, which was not invented until after April 20th, 1853.

We propose hereafter to examine and discuss the testimony showing the dates of these several inventions. Observing here that the first machine of appellant was made late in May, 1852, and the second after April 20th, 1853.

That the machine manufactured and sold by the appellees, Selby, Elder, Cattee and Spurck, at Peoria, Illinois, was invented by the appellee, James Selby, and patented to him August 30th, 1864.

That the machine manufactured and sold by Geo. I. Bergen and Frederick P. Sisson, at Galesburg, Ill., was invented by said Bergen, and patents granted to him Dec. 1st, 1863, and March 7th, 1865. Pending the litigation Bergen died, and the appellee Guild is his executor.

From this general survey of the state of the art, we find that seed-planting machines, and even machines for planting Indian corn, exclusively, are much older than the pretended inventions of appellant.

That all the elements or rudimental parts of the modern corn planter are found in the earlier machines, performing the same functions more or less efficiently. Runners, coulters, shoes, teeth, were so constructed as to open a furrow, mount up and over, and cut or break through intervening obstacles without much lateral displacement of the soil, holding the earth open until the seed was securely deposited in the earth. Rollers or wheels followed in the line of the runners, to press down the earth, and thus cover the seed, and also performing the office of sustaining the frame work. A device for dropping the grain was erected upon this frame work, sometimes operated automatically, again by the hand of an operator, either riding on, or walking beside or behind the machine.

This seeding device consisted of hopper, valves and lever. Sometimes but one valve was employed, located in the hopper. Again, two valves were used, one in the hopper and one in the seed duct, placed low down near

the ground, to prevent dribbling the grain along the ground, and to plant it closely in one hill, or in check rows. These valves and lever being so combined that in some machines two motions of the arm were required to plant each hill of grain; in others, but one. In some the dropman rode, and driver walked, and *vice versa*, and again both rode.

A joint gave flexibility, so that by means of a lever the runners, shoes or teeth could be raised or depressed. This joint was variously located, depending upon the peculiar construction of the machine. Sometimes this lever was especially constructed to perform the office, and sometimes the frame of the machine was so employed by means of the driver's weight applied to the rear.

Indeed, there is not a function of the appellant's machine that was not performed by others, in advance of him. It only remains to him to show that he has brought these old parts into new relations, producing new and useful results. If so, and his claims are properly restricted, his patents may be sustained; but if it shall appear, as we think it will, that, in the language of the court below, he "lays his hand substantially on this corn-planting machine entire," as the inventor thereof, ignoring and excluding all others prior to him, then his patents must fall.

Mr. Brown esteems himself the inventor of the runner, the joint, the lever, the two frames, the seeding device, and all combinations of them, as well as all modes of mounting the attendants on the machine, to perform their several duties, irrespective of the places where located or the manner and means of operating. "This sweeping claim of an entire machine" cannot be regarded with favor where it so clearly appears that the patentee in the beginning ~~launched~~ limited his pretensions to a slight improvement upon existing inventions, but by the aid of ingenious solicitors has in successive surrenders and reissues, expanded his claims, covering the entire field of invention in this department. So that the *runner* of 1858 grows into the entire machine of 1860.

Construction of Appellant's Patents.

Before examining appellant's reissues, we call attention to the claims in the patent originally granted to him in February, 1853. It will be seen that they are narrow, and bear slight resemblance to those contained in the reissues.

Mr. Brown, in 1853, claims to have invented "new and useful improvements in seed planters, for planting corn and small grains," and in the summary, the invention claimed is "The oscillating horizontal wheels or distributers in the bottom of the hopper, having slots and holes of various sizes, in combination with the stationary caps and pins for the discharge of different kinds and quantities of seeds. 2nd. Also the arrangement of the covering rollers mounted as described, and performing the purpose of covering the seed, elevating the cutters in turning around, and adjusting them to different depths." This was surrendered five years after (in 1858), and claim made for a totally different thing,—to wit, "A shoe for opening a furrow which has a convex edge in front and a seeding tube in its rear end, so that it may cut through any grass, open out a furrow, and hold it open until the seeds are deposited in it substantially as herein set forth." When applying for this reissue, he made a further claim in these words: "And I claim in combination with a shoe so constructed, the joint or hinge in the machine, by which means said shoe may be raised or lowered to admit of turning around or entering the ground substantially as described." These claims were denied on a reference to Job Brown and Henry Todd. The first was afterwards allowed, but previous to its allowance and after notice of its rejection, Brown and his brother-in-law, Hibbard, visit Job Brown, distant forty miles, in the inclement month of January, and procure from him a paper withdrawing his claim for the patent for seed planting machine (pp. 530–532). This paper is dated January 7th, 1858, and on the 28th of same month, his patent solicitor presents it to the Department, and thereupon the

reissue of Feb'y 16, 1858, for the runner alone, is granted. That Job Brown executed this paper in ignorance of the purpose for which it was to be used, is manifest from his answer to Cross-Int. 23, p. 532. He understood that the invention which he claimed as his own, and for which he applied for a patent, had become public property. He did not understand that Geo. W. Brown was getting his application out of the way to further another. Now it is said Geo. W. Brown's application was older than Job's; true, but Job's *invention* was the older.

But the appellant, not satisfied with this reissue for the runner, again surrenders it and obtains the five reissues in question (1036 to 1040), and in examining the construction of these reissues, we beg the attention of the court to the classification of the subject matter of patents for machines by Justice CLIFFORD, in *The Union Sugar Refinery* v. *Matthieson*, 2 Fisher, 600, which is substantially that of Justice STORY in *Moody* v. *Fisk*, 2 Mason, 112—117, and Curtis on Patents, 3rd edition, secs. 110, 111. They are—

1st. Those where the invention embraces the entire machine—as a car for a railway, or a sewing machine.

2nd. Those which embrace one or more elements of a machine, but not the entire machine—as the coulter of a plow, or the divider of the reaping machine.

3rd. Those which embrace both a new element and a new combination of elements previously used and well known.

4th. Those where all the elements of the machine are old, and where the invention consists in a new combination of those elements whereby a new and useful result is obtained.

REISSUE NO. 1036 (p. 8).

If valid, this patent comes under the fourth class. The claim is to "a seed planting machine, constructed principally of frame work, the front part of which is sup-

ported on not less than two runners or shoes, with upward inclining edges, and the rear part supported on not less than two wheels, the latter being arranged to follow the former, substantially as and for the purpose set forth."

We think this patent invalid upon several grounds. First, because it purports to be an "improvement in seed planters," and he does not specifically point out his improvement, and distinguish what is new from what is old, but describes the whole machine in such a way as to make it appear to be claimed as his invention, and indeed, in the summary, does claim it. We will not elaborate this point here, but refer your Honors to the authorities cited in the discussion of reissue No. 1095, which bear upon it, and, as we think, fully sustain it.

We postpone to the discussion of reissue No. 1039 the other grounds upon which we deem this patent, as well as 1038 and 1039, invalid. But, in view of the existing state of the art, if this reissue can be sustained as valid, and not in conflict with both 1038 and 1039, it must be either—first, as a combination containing three elements, to wit, frame work, runners and rollers. If more than these make up the combination, then it conflicts with 1038 and 1039, one or both, and all fall. Or, secondly, this reissue must be construed as a claim to such a seed planting machine as is described in the specification; that is to say, to a combination of all the parts essential to the operation of the machine, and operating substantially as described. If construed as a claim to frame, runners and rollers, then it is answered by Kirkman, and it is also answered by Job Brown's hand-planting check-row machine of 1850, and three-wheel automatic machine of 1850 by Moffit, Remy & Kelly, and Abbott's first machine of 1846. If it be construed as secondly above indicated, then the machines of the defendants do not infringe, as their planters are substantially different, in construction and mode of operation, from the machine described and set forth in Mr. Brown's specification to this reissue, and exhibited in his model and drawings.

Adopting, then, the rule of construction last above indicated, we find this patent claims, as one of its conditions, that "the front part is *supported* on not less than two runners." (Page 10, line 8.) Now the machine of Selby being modeled after the English drilling machines, has a continuous frame work extending from front to rear —not divided into *two* parts, as is the machine of complainant; and his front part is not supported *on* runners, but the runners are *attached* to the frame work at their toes or points by a hinge joint, and are drawn along over the ground by these attachments, and are themselves supported *by* the frame work. Another condition is, that "the driver, who walks in the rear of the machine, may catch hold of the cross-bar, or lever, *M*, and by raising it up raise up the rollers, or by pressing it down raise up the runners or shoes out of the ground." (P. 10.) "The hinge joint at *d* admits of the runners, *A*, being raised up out of the ground. * * In thus raising up the seeding part of the machine, or the runners, the tongue, *E*, the point of which is attached to the necks of the team, is *one fixed point* in relation to the ground, and the wheels, *k k*, make *another fixed point*, so that, *by using the lever*, *M*, the shoes are raised up *and suspended* on these fixed points, and it is immaterial whereabouts between these fixed points the hinge joint is, so THAT the runners are suspended and carried *by the point of the tongue* and the wheels, *k*." (P. 11.) In neither of the machines of Selby and Bergen is this function of raising the runners accomplished by the same or equivalent devices operating in substantially the same way. For, first, in all of these the driver rides *on* the machine instead of "walking in the rear," as in appellant's; and secondly, they do not use a cross-bar or lever, *M*, or any equivalent device, by pressing down upon which they raise up the runners; and thirdly, when the runners are raised up in their machines, they are not suspended on the *point of the tongue and the wheels* as the two fixed points of support—in fact, as was demonstrated at the hearing, on

taking the pin out of the toe of the runner in Selby's machine, and thus detaching it, the point of the runner will raise *up*, instead of press down, and the tongue will fly *up* in the neck-yoke, instead of rest on the horses' necks as one of the fixed points of support; and it results from the peculiar manner adopted in constructing one continuous rigid frame from front to rear in Selby, and hitching the runner thereto at its point; and in practical operation the weight of the driver balances up the tongue, so that in planting and in raising the runners no weight is thrown on the point of the tongue or horses' necks. In discussing patent 1038 we will examine this more at length, in connection with the testimony.

In the machine of Bergen, the construction of the adjustable lever bar, combined with the slotted joints on each side of the machine, brings about the same result as is attained in the machine of Selby in a different way; that is, the weight of the tongue is lifted from the horses' necks when the runners are raised up in turning round; its point, or the horses' necks, are not then one of the fixed points of support, and the runners are not then "suspended and carried by the point of the tongue and the wheels, as the fixed points of support." This fact is specially set forth in the patent of Bergen.

Again, the machine of Selby does not fulfill this condition, in that the *rear* frame does not constitute the *lever* by which the runners are raised through the weight of the driver. He employs a different kind of lever, operating in a substantially different mode, to produce the result of raising the runners. The doctrine as laid down in *Case* v. *Brown*, 2 Fisher, 274, by His Honor Judge DRUMMOND, affirmed by the Supreme Court in 2 Wallace, 326, is directly in point. His Honor there says: "Case does not claim *in language* what has been termed by the counsel on both sides the automatic return of the lever, but claims the *kind of lever* connected with the hopper, the seed tube and the slides *which has been described in the specification*, and we cannot separate the specification

from the claim, and we must take the lever *as he has described it, and its mode of operation*, just as though he had distinctly set it forth in the claim." Indeed, if the complainant is not, in this machine of 1853, to be limited to the use of a lever operated by the driver walking behind the machine, and throwing his weight upon it, then the subsequent patents of 1855 are void; and here we call the attention of the court to the distinction set up in one of the reissues of the patent of 1855, between raising the runners by the man walking behind, and the man riding on the machine, which latter feat he thought called forth in an eminent degree the inventive faculty. (See reissue 1093, page 29.) He there says: "When the operator of a seeding machine *walks* upon the ground, along side of, or *behind* the machine, it is very easy for him, by means of a lever, to raise or hold up certain portions of the machine, he himself being one of the points of support; but when the operator is mounted *upon* the machine, then the support afforded by his person is lost, *and other* means must be resorted to to effect this object. To accomplish this object with the operator or attendant *mounted upon the machine* is the subject of this patent." Here, then, is a substantial and patentable difference, the complainant himself and the department being the witnesses.

Another condition of this patent is, that the machine must be composed principally of *frame work;* and by this he says he means "a machine without gearing, without spoked wheels and other expensive fixtures, and resembling a *drag* or *sled* more than it does a carriage or wagon in its main or general construction." (P. 11.) Now the machines of Selby and Bergen do not respond to this condition in that they do not resemble the *drag* or *sled* more than the wagon or carriage in main or general construction, and the machine of Bergen does employ *spoked wheels.* These are, by the patentee's own claim, excluded. He defines precisely what he means by "frame work," and even though spoked wheels would

be an equivalent for the solid *log* wheels, which the testimony shows he employed in this machine of 1853, yet, where the patentee, as in this case, excludes from his claim such an equivalent, he is bound by it, and this very point was decided in the case of *Byam et al.* v. *Farr et al.*, 1 Curtis Cir. Ct. R. 260. There one of the ingredients used for the manufacture of lucifer matches was a chemical equivalent for that employed and claimed by the patentee, but he expressly disclaimed this equivalent as not within the invention, and the court held him bound by the language of his claim, and decided that its use was not an infringement. See also *Sickles* v. *The Gloss Manufacturing Company*, 1 Fisher, 222.

But these log wheels were *too small* to have been substituted by spoked wheels, and their size was congruous to the other parts of the machine. Their office was to *cover* the seed. They were not bearing wheels to any extent, as are these in appellees' machines, but were in addition only used as fulcra for the pry or lever which raised the runners. Appellees' large wheels are bearing as well as covering wheels, and sustain the heavy frame work with the driver upon it. In short, the small wheels and levers did not relieve appellant's machine from its resemblance to the drag or sled, while the large wheels and frame work carried by them in appellees' machines make them bear resemblance rather to the wagon or carriage than the drag or sled.

Bergen also escapes this patent by the use of *concave* runners. The patentee claims his runners as *convex*, and, in his patent of 1858, he distinguishes between the concave and convex, and even though the concave were an equivalent and operated substantially in the same way, which we deny, yet under the doctrine of *Byam* v. *Farr*, Bergen does not infringe.

In our discussion of the other reissues of this series, to wit, 1037, 1038 and 1039, which are respectively for the runner, joint and lever, we shall go more into detail and examine the prior patents of appellant in connection with

the testimony as to the practical operation of the several machines, as also the several patents granted to the appellees. But we deem it too clear for extended argument that if we go out of the summary of claim, which simply covers the three elements of frame, wheels and runners, into the specification, to find the machine constructed and operating, substantially as therein described, we bring into the combination, as an indispensable part of it, the joint and the lever, constructed and operating as described, for these are parts of the machine without which it could not perform the functions claimed.

REISSUE No. 1037 (p. 12).

The summary of claim is "a runner for seed planting machines," containing certain qualities or peculiarities.

This claim does not limit the patentee to a runner in a machine having two frames connected by a hinged joint, as claimed by the expert, Bond.

This runner performs certain functions as set forth in the *summary of claim*. The patent nowhere claims that these functions can only be performed in such a machine as is described in the *drawings*. The specification is *silent* upon that point.

But complainant's expert, Mr. Bond, endeavors to avoid the machines of Abbott, Todd, Kirkman, and Job Brown, by affirming as his *opinion* that these *functions* claimed cannot be performed except in a machine of *two* frames connected by a hinge joint. But the expert is answered by the patentee, Brown, who swears, (pp. 330, 331,) that the machine of Case and that of Kirkman were infringements, (these had not *two* frames, but were rigid.) The runner would in their machines perform the same functions—"mounting over obstacles," etc. McGaffy, Haworth and Selby all swear, with Brown, that the runner in a machine of rigid frame throughout, and jointed at the tongue like Kirkman's and Brinkerhoff's, would perform the functions claimed, and indeed, in the rigid

machine of Abbott, which was without any joint, it would do likewise.

This claim is for a runner "for seed planting machines," without regard to the fact whether they be automatic or hand planters, of two frames or only one, with or without hinge joints, or jointed at the tongue, at the toe or heel of the runner. He simply says: "The *manner* of connecting SUCH shoes or runners with *a* seeding machine, is fully shown by the drawings." Is it not remarkable, if these functions could only be performed in such a machine as is shown by the drawings, that the specification does not say so? But this expert's view is fully answered by the reissue of February 16th, 1858, which was upon the runner exclusively, and which simply distinguishes his invention from the *coulter*, which allowed the dirt to fill up the furrow, etc., and in his application he also had a claim for the runner in combination with the joint, which was disallowed, and he withdrew it. And again, when refused a patent in 1858 upon a reference to Job Brown, whose machine had *no joint*, he did not make this point now contended for by his expert, Bond, but obtained Job Brown's disclaimer, and then the patent of 1858 issued to him with a single claim.

But this reissued patent is answered by the case of *Seymour et al.* v. *McCormick*, 19 Howard, p. 76, in so far as complainant seeks to limit the claim to a runner in combination with a corn planting machine, constructed of two separate frames, connected by a hinge joint. As he does not claim such frames connected by the hinge joint as a part of the combination, he cannot, therefore, thus limit the claim, or include such frames and joint as an element in the combination, in order to save it from the prior inventions.

Justice NELSON, in delivering the opinion of the court, says: "The grounds upon which the defendants insist this claim was not new, was, that it claimed simply the reversed angle of the teeth of the blade and cutters. The court below were of opinion that, reading the claim

with reference to the specification in which the instrument was described, it was intended to claim the reversed angle of the teeth in connection with the spear-shaped fingers, arranged for the purpose of securing the grain in the operation of cutting, the novelty of which was not denied. The majority of the court are of opinion, that this construction of the claim cannot be maintained, and that it is simply for the reversed angle of the cutters, and that there is error, therefore, in the judgment in allowing plaintiff costs."

Again, we further urge that this patent is void for fraud in obtaining the disclaimer or withdrawal of Job Brown. (See correspondence with Patent Office, and deposition of Job Brown, pp. 530–532).

But defendant, *Selby*, does not use a runner containing one of the conditions or functions claimed in this patent, to wit, "long enough to form a *support* for the frame *to be carried by it.*" In his machine the runner is simply attached at the toe, and the frame is not carried by it, but it is carried along with the frame which is carried on the axles, and *in operation* balanced up by the weight of the driver who sits in the *rear* of the axle, and this necessarily results from the peculiar construction, which is not properly of two frames but of one frame, rigid from the point of the tongue to the rear end.

Bergen does not infringe because he uses a *concave* runner, and according to the testimony of G. W. Brown, himself, as contained in his specification of the reissue of February 16, 1858, such a runner will not perform the functions of this convex runner, as claimed by the patentee. He there says, "I am also aware that a sort of *concave* coulter, with a seeding tube in rear of it has been used, but this will not cut through the sods and open a furrow properly, its tendency being to pile and raise up everything upon the coulter, and thus clog the machine." And we again employ the doctrine of *Byam* v. *Farr*, the lucifer match case, to this disclaimer, and conclude him by it. The concave runner operates in a substantially

different manner, and produces a substantially different result and a better result, and estimated alone from this result, it may be deemed different in principle. (See testimony of Wills, p. 635, Int. 13–16, as to Bergen's runner; also that of W. P. Sisson, p. 653, Int. 11–18.)

But the substantial difference in construction and mode of operation between the concave and convex runner is set forth clearly in the patent granted to defendant Bergen, March 7, 1865, for this concave runner. It is as follows: "*D* represents the runners which have their lower edge from *a* to *a* made concave instead of convex or straight as is usual, the portion from *a* to *a* increasing gradually in width vertically toward its rear end, whereby the heel, *A*, is made to cut deeper into the earth than any other portion of the runner. These runners are made of steel, and have their lower edge sharpened. Their front ends are secured to the frame, *B*, by means of the curved brace, *C*, their rear ends being united to the seed tube, *E*, as shown in figure 4. The object of making the runners thus is threefold. First, the concave edge gathers and presses down upon the ground the stalks, weeds and litter that may chance to be in the path, so that in passing over them it is more certain to cut through them into the ground; secondly, by making it wider and sharper at the heel, *A*, a small deep gash is cut at the bottom of the furrow, from which moisture is more readily furnished for germinating the seed and continuing its growth; and thirdly, by uniting it to the tube in the manner shown, their surfaces are brought flush on the sides, where they unite, whereby the soil is prevented from adhering to the front of the tube, and interfering with its operation, as it does in the case where a shoulder or jog is left at the union of the two parts."

This difference in construction and mode of operation was so obvious to the department that a patent was granted to Bergen upon it, although of course the examiners were well advised of the existing patent to complainant.

with reference to the specification in which the instrument was described, it was intended to claim the reversed angle of the teeth in connection with the spear-shaped fingers, arranged for the purpose of securing the grain in the operation of cutting, the novelty of which was not denied. The majority of the court are of opinion, that this construction of the claim cannot be maintained, and that it is simply for the reversed angle of the cutters, and that there is error, therefore, in the judgment in allowing plaintiff costs."

Again, we further urge that this patent is void for fraud in obtaining the disclaimer or withdrawal of Job Brown. (See correspondence with Patent Office, and deposition of Job Brown, pp. 530–532).

But defendant, *Selby*, does not use a runner containing one of the conditions or functions claimed in this patent, to wit, "long enough to form a *support* for the frame *to be carried by it.*" In his machine the runner is simply attached at the toe, and the frame is not carried by it, but it is carried along with the frame which is carried on the axles, and *in operation* balanced up by the weight of the driver who sits in the *rear* of the axle, and this necessarily results from the peculiar construction, which is not properly of two frames but of one frame, rigid from the point of the tongue to the rear end.

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This difference in construction and mode of operation was so obvious to the department that a patent was granted to Bergen upon it, although of course the examiners were well advised of the existing patent to complainant.

The complainant is, however, clearly anticipated by several persons.

The runner of Abbott was made in 1848. The original is produced and made an exhibit, being of wood, shod with iron, and his expert, Bond, admits that this runner in a jointed machine of two frames would anticipate Brown.

Job Brown's runner also anticipates complainant's. The original iron runner of Job is made an exhibit, and the counsel, Mr. Harding, admitted below that it was identical with Brown's, but claims that it was an abandoned experiment, and this in the face of the fact that Daniel Brown swears it was worn out with use. Bond admits the same.

The runner of Kirkman also anticipates him. It is clearly proved that the man Scholey, who assisted in making the second form of that runner, died on the 19th of January, 1851. (Dr. Frye, p. 524.) (Scholey, pp. 519, 521, 522.)

The runner of Todd, made in 1843, is substantially the same. Dodge, the expert, so swears, (p. 697.) So is that of Joab Moffit, made in 1834.

O. P. Bassett also made a runner substantially like that of Brown's, prior to the time when he claims to have invented it, and Brown was at Bassett's shop and saw it at Knoxville. (See Bassett's and Brunk's depositions, pp. 615, 617, 618, 624, 625, 626.)

That Brown did not invent this runner, and knew it to be in general use and public property, is conclusively shown by the testimony of H. H. May, (p. 660), who drafted his first specification in September, 1852, for the patent of 1853. He swears that he called Brown's attention to the matter of making a claim for the runner, and that he instructed him not to make a claim for it, as it was public property. Brown well knew that Bassett, of Knoxville, was using it in his grain drills, and no doubt had frequently seen the farmers using the machines of Job Brown containing it. He hadn't the effrontery then

to claim it, and not until 1858, six years afterwards, does he undertake, in his reissue, to set up this claim—no doubt then prompted by his patent solicitor. Do not these facts operate as an estoppel?

REISSUE No. 1038. (p. 14.)

The next in order is Reissue No. 1038, or the claim to the *hinge joint*. Our construction of this claim makes the combination consist of five elements, to wit: 1, rollers; 2, rear frame; 3, runners; 4, front frame; 5, *joint* connecting the two frames; otherwise this division of the series conflicts with No. 1036.

The summary of claim is: "In combination with a seed planting machine constructed principally of frame work, with not less than two runners and not less than two wheels, a hinged joint between the point of the tongue and the rear part of the machine, so that *one part* of the frame work may be raised, lowered, adjusted or supported *on the other part* substantially as described." (p. 16). It is very evident from this summary that the machine must have a frame work in two parts. That one part contains the runners, and the other part the wheels, and that these two parts are connected by a joint. For if it be not limited to a machine of *two* frames, it is met completely by the machine of Kirkman, which has all the elements in this combination except two frames.

Secondly, These five elements are to be constructed and operated substantially as described in the specification, producing the results therein described, otherwise the machine will be met by that of Remy & Kelly, which has two frames connected by a joint producing the same result. It is no answer to this view to say that Remy & Kelly had seeding teeth and not runners, for the proof shows that runners and seeding teeth were in common use in these machines to perform the same functions, and surely Mr. Brown could not have placed his runner in Remy & Kelly's machine and claimed the

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joint for raising them, for the joint would perform the same function whether it were employed to raise runners or seeding teeth. This point is too clear for argument, and on looking into the specification of this patent, we find that it is not infringed by Selby or Bergen.

For 1st—The patent provides that the "joint must be somewhere BETWEEN the *supporting points of the machine upon the ground.*" (p. 15). These in Brown are, as he says, the *horses' necks* and the *wheels.* Now, in Selby, when the runners are raised or supported on the other part of the machine, the horses' necks are not one of the supporting points. The support is entirely upon the wheels, and no weight is added to the horses' necks. The very structure of the machine shows this, and such is the uncontradicted testimony as to its uniform construction and practical operation.

2nd—By means of the hinge joint, the patentee says, "*one part* may be raised, * * supported, etc., on the *other part*," meaning by "one part" and "the other part," the part in *advance* and the part in *rear* of said hinge joint. (p. 15). Now, in Selby, as the joint is at the *toe* of the runner, the "part in advance" is the tongue, which is not the part to be raised. The patent is thus clearly limited to a joint in the *rear* of the runners.

3rd—The joint, he says, allows that part in front of it and that part in rear of it to accommodate themselves, independently of each other, to the natural roughness of the ground.

4th—And although he says "it is immaterial whereabouts between these fixed or bearing points the hinge joint is located, yet it must be *so* located that the runners are suspended, etc., 1, *by the point of the tongue*, and 2, the wheels through the hinge joint and the lever connections between." (p. 16.)

5th—This last, "the lever connections," also involves the condition that the lever, *M*, is to be used to operate the joint; that is, the joint is only operated and the runners raised by using the cross-bar, *M*, or, as he now calls

it, the *rear frame*, as a lever. Now, Selby, by his peculiar construction, using one continuous rigid frame throughout, from the point of the tongue to the wheels, and jointing necessarily at the *toe* of the runner, does not use the rear frame as a lever; but uses the treadles, erected *on* the rear frame, as shown by his model. The proof, as to the construction and practical operation of his machines, in this respect, is as follows:

Selby testifies, (p. 727,) "Well, we are enabled to carry the *weight* of the *tongue and the front part* of the machine by the weight of the driver *free from the horses' necks;*" and on p. 728, Int. 30, "When the runners are so raised in turning around, is any portion of the weight thrown upon the point of the tongue or horses' necks?" Ans. "No, sir, it is raised up." E. G. Emerson also testifies (p. 685) to the same fact, and he was a practical operator of the Selby machine, as well as the Brown machine. So also in the Haworth machine, substantially the same in this respect, Haworth testifies, (p. 711, Int. 31), "I have never made a machine, of all that I have made, that there was any weight upon the horses' necks. I have always placed the driver far enough in the rear of the center of the wheel to balance all the weight of the tongue in the front part of the machine, so that there was a pressure *upward*—so that the tongue pressed upward in the neck-yoke," etc. The great practical advantage gained, beside relieving the horses from this weight, by this mode of constructing a machine of one rigid frame throughout, and attaching the runners by a joint at the toe, is explained by Haworth on pp. 712 and 713, which we beg the court's attention to, having inserted it hereafter. (See also Selby, p. 727, to same point.) Estimating alone from these practical advantages, the machine of Selby is not within this patent.

The machine of Bergen is composed of two frames. In this respect it differs from that of Selby and resembles appellant's. It has two slotted joints on either side of the frame, and an adjustable slotted *lever* bar, by means

of which latter the front frame is raised. It is to be observed that this Brown machine of 1853 has, in fact, properly no rear frame connected to a front frame by a joint; but conceding, for the sake of the argument, that this pry or lever, which is borne on the small log wheels, is a frame, yet the claim in this patent is not for connecting two frames by a joint—Moffit, Todd, and Remy & Kelly did that; nor for raising a front frame by the use of a joint, for Moffit and Remy & Kelly did that too; but the claim is to the employment of the joint "so that one part of the frame work may be raised, lowered, adjusted or supported on the other part *substantially as described.*" This patent is only sustained by limiting the claim to the employment of a joint in such a machine as is described, operating "substantially as described," and producing the results described in the specification. Now, in the machine of Bergen, the point of the tongue on the horses' necks is not one of the bearing points or ground supports when the runners are suspended, but the entire weight is then thrown upon the wheels; and this fact is distinctly set forth in Bergen's patent of March 7th, 1865, pages 2 and 3. He there says: "As the joint formed by pin, *h*, is some distance *in front* of a line passing through the joints in the sides of the frame formed by *d e*, it follows that when the dropman *dismounts*, as is the custom in turning at the ends of the rows, the weight of the driver acting on frame, *A*, as a lever, whose fulcrum is the axle, the front end of said lever, which is the curved end of *f*, operates to lift the rear portion of the frame, *B*, with its runners, clear from the ground, so that the machine can be turned about upon its wheels like a cart. When this is done it is obvious that a portion of the weight of frame, *B*, through the medium of the tongue, *F*, would be brought to bear upon the *necks of the animals if no provision was made for preventing it.* It will be seen, however, that when the bar, *f*, begins to elevate the frame, *B*, the movement soon brings the piece, *e*, of the side joints against

the plate *d*, whereby the side joints are *locked or rendered rigid;* and that when this is accomplished, any further movement of *f* upward will lift not only the rear of frame, *B*, but the entire frame, *tongue and all*, and that thus the *necks of the animals* can be entirely relieved from pressure." Again, this patent, No. 1038, provides (p. 16) that "it is immaterial whereabouts between these fixed or bearing points the hinge joint is located, so THAT the runners are suspended, carried or controlled by the point of the tongue and the wheels, *k*, through the hinge joint *and the lever connections between.*" This joint is therefore to be operated in raising the runners by substantially such a lever as is described, operating as described. Now, the adjustable lever bar employed by Bergen operates in a substantially different manner to produce the result, and the driver *rides* on the rear frame to operate it, which, according to the patentee himself, is a patentable distinction. We have, in discussing No. 1036, called attention to this point.

The department has recognized the novelty of Bergen's mode of hinging by granting him a patent for it. (See his patent of March 2, 1865, 2nd claim, and patent of April 18, 1865, 8th claim.) This form of construction has also enabled Bergen to locate the dropman's seat in the rear of the heel of the runner, for the purpose of balancing the weight of the front part of the frame and the tongue, by which, *while planting*, the horses' necks are relieved from the weight of the tongue, and the 8th claim in said last mentioned patent covers this improvement. The witness Miles, who, as a farmer, operated Bergen's machine, (p. 608, Int. 13,) testifies "That (Brown's machine) rested *when it was running*, the tongue rested on the horses' necks, and on the wheel. Those were the points of bearing. Here in this machine before you (Bergen's) you have *none* of the weight of the tongue on the horses' necks; this hinge joint takes all the weight off the horses' necks." These two bearing points or ground supports are marked features in Brown's ma-

chine, and the patent in question could not have been granted in view of the state of the art unless he had confined his claim strictly to an arrangement such as he had devised,—to that shown in the model and drawings and set forth in the specification. The doctrine of *Case* v. *Brown* would, at all events, in order to save this patent, limit the claim to such a device as is described in the specification, operating substantially as therein described. It is not material that another machine is found to contain the same number of elements, otherwise the Remy & Kelly machine, which has these five elements, would anticipate. These elements must be so combined as to operate in substantially the same way in producing the result. Judge SPRAGUE says, in *Eames* v. *Cook*, 2 Fisher, 146, the boot tree case: "In comparing the plaintiff's patent with any other machine, in order to determine whether the mechanism is the same, we must first see whether such other contains substantially the same devices, and if it does, then *whether the arrangement or mode of applying them is the same;*" and in *Burden* v. *Corning*, 2 Fisher, 489, before NELSON & HALL, J. J., it is said, "But to construe this as a broad claim to the *result* of the operations of the machinery by which this is effected, and so as to embrace every device and all forms and combinations of machinery by which this result can be obtained, would render the patent void. The claim must be construed as favorably to the plaintiff as the language of the claim, the state of the art, and the extent and character of his actual invention will allow, and it must, I think, be considered as a claim to the *particular means* and mode of operation described in the specification, and then it will extend by operation of law to the equivalent means. Not equivalent simply, because the same result is thereby produced, but equivalent as substantially the same mechanical device in structure, arrangement and mode of operation." And the court in this case cite the doctrine of *McCormick* v. *Talcott*, 20 How. 402, the divider case, that "The inventor of the

first improvement cannot invoke the doctrine of equivalents to suppress other improvements which are not mere colorable invasions of the first." These principles have become familiar; their application is sometimes difficult even to the most experienced and skillful, but we conceive that it cannot prove so in this case.

REISSUE No. 1039. (p. 16.)

Next in order is Reissue No. 1039. This patent contains two claims. (p. 19.)

The first is, "In a seed planting machine wherein the seed dropping mechanism is operated by hand, or by an attendant, in contradistinction from mechanical dropping. *The mounting* of said attendant upon the machine in such position that he may readily see the previously made marks upon the ground, and operate the dropping mechanism to conform thereto, substantially as herein set forth." It is conceded, of course, that all the defendants *mount* the dropman on their machines in such position as is herein described. If this claim be construed, as it most obviously must be, to mounting the dropman, it is void as a claim to a result. (*Carr* v. *Rice*, 1 Fisher R. 324; *Sickles' Case*, 2 ib. 202.) But if it could be sustained on its face upon any construction of it, it is void for want of novelty. Beck says the dropman rode on Moffit's machine. Job Brown, who planted in check rows, mounted the dropman on both of his machines, in such position as to enable him to see the previously made furrows and drop the corn in the check rows. Charles Finn did the same thing—his machine was a check row planter—and the testimony of Morgan Hart (p. 62) shows that he rode on the seed hopper, in such a position as to enable him to drop into the previously made furrow. In the machine of Remy & Kelly, although the dropman was not in fact mounted on the machine, yet there was a place upon which he could have mounted, in the manner described in this patent.

To this, Mr. Dodge testifies. (p. 699, Int. 37.) The machine of Kirkman was capable of being used as a hand dropper. That it was not, can make no difference. The device was there, to wit, the *L* lever. (Dodge, p. 699.) It is no answer to say that this last machine was intended as an automatic planter, and so used, and that the dropman actually walked beside the Remy & Kelly machine. The inquiry should be, what devices did the machines actually contain? What without substantial change did they exhibit to the world, and for what purpose could they have been used? If, in the Remy & Kelly machine there was obviously a *place* for a dropman to ride, that is all that the patentee had in his machine. The question as to the priority of these respective machines will be discussed in its proper place.

The second claim in No. 1039 is, "In combination with a seed planting machine composed substantially of frame work, and upon which the person who works the seed slides or valves *sits or stands*, *a lever*, or its equivalent, by which a driver or second attendant may raise or lower that part of the frame work that carries the attendant and the seeding devices, and thus ease the machine in passing over intervening obstacles, or in turning around, substantially as described."

The discussion upon the construction and limitations of the previous reissues will also apply to this. This is a claim to the *lever*, such as described, operating as described, otherwise Remy & Kelly and Kirkman anticipate. We apply again to this patent the doctrine of *Case* v. *Brown*. 2 Fisher, 274. Justice DRUMMOND says, "he claims the *kind of lever* * * * * described in the specification, and we cannot separate the specification from the claim, and we must take the lever as he has described it *and its mode of operation*, just as though he had distinctly set it forth in the claim." It is therefore

to be a lever constructed and operating as described. He describes it as operating with the dropman riding *on* the machine, and the driver walking behind it, and the driver, by pressing down upon this cross-bar or lever, *M*, while walking behind, raises the front frame with the dropper. The defendants' levers do not accomplish that result. The dropman invariably *gets off* when the front frame is raised in their machines, and the driver as invariably rides on them in that case ; and this latter circumstance is made very material by Mr. Brown, when he comes to reissue No. 1093, where *his* driver also rides, in which latter patent he claims the "so connecting" of the parts as to accomplish that result, with the driver riding on the machine. This, of course, would conclude the patentee from contesting this construction of the patent.

But this patent contains the same condition or limitation as 1038, to wit, the mechanism or elements must be so combined as that when the lever thus performs its function, the front frame is suspended and carried upon the two fixed or bearing points, to wit, the point of the tongue and wheels. He says (p. 19) : "The weight of the person who works the seed slides is important at times to hold the furrow openers to or in the ground, and when his weight becomes a bar or preventive to the machine's other duties, viz., mounting over obstructions or in turning around, I have provided a means, as above described, of counteracting his weight by throwing a portion of it *upon the wheels and tongue*, and *suspending* the seeding mechanism to them, or, in other words, removing the weight from the runners and its frame, *except the tongue*, and throwing it upon the wheels and tongue," etc.

We have shown that the machines of the appellees do not fulfill this condition ; that in neither of them is the point of the tongue a bearing point or ground support when the runners and seeding devices are raised from the ground, but the whole weight is, in that case, thrown

upon the wheels. And we may as well here as elsewhere call the attention of the court to the practical advantage gained by the appellees in their form of construction over Brown's machines of 1853 and 1855, which of itself alone, estimating from such beneficial result, would distinguish the machines of the appellees from those of appellant, as substantially different in construction. It is, of course, essential to relieve the horses of as much of the weight of the machine as possible. Mr. Bond swears that the front frame of Brown's machine, including the runners, weighs from 200 to 300 pounds. (p. 307, Int. 295.) Now, add the weight of a half bushel of corn in the seed hoppers, and that of the dropman, and we have from 350 to 450 pounds. This, in Brown's machine, when suspended, must be borne on the horses' necks in large part. In appellees' it is borne wholly upon the wheels, and in the operation of planting, the appellant Selby gains another marked advantage by hinging at the toe. This will be best stated in the language of Haworth, (who was also sued by Brown,) (pp. 712, 713,) as follows :

"Int. 34. Where is the weight of the dropper carried in your machine?

"Ans. It is carried—it is supported on the lower end—on the same lever that the driver sits upon.

"Int. 35. Is that weight carried on the fore carriage of the machine, or the rear, or both?

"Ans. It could be applied there at pleasure by adjustment of the fulcrum, or it can be balanced up and supported entirely upon the fulcrum.

"Int. 36. In practical operation in planting where is the weight of the dropper borne?

"Ans. Well, sir, it requires but a very small portion of the dropper's weight to keep the runners in the ground, and the balance of it is supported on the wheels, goes on the main frame, and the main frame is supported on the wheels.

"Int. 37. What proportion of the dropper's weight is borne upon the runners in planting?

"Ans. Well, I would suppose, for an average sized man, that about one-third of his weight is necessary to

keep the runners in the ground, in my machine. I would use the lever, though that is dependent a good deal upon the condition of the ground. As a matter of course, planting in soddy, hard ground would require more weight in order to keep the runners in the ground a sufficient depth to cover the corn. But the ground in such condition as it ought to be in for planting corn—as it is ordinarily—one-third of the dropper's weight rests upon the runners.

"Int. 38. Is there or not, in practical operation, any difference in your machine and that of the complainant Brown in that respect, and if so, what, and how is that difference occasioned?

"Ans. Well, sir, there is a difference in that respect, caused by the manner of hinging. Brown's, you may say, his front part, is hinged in the neck-yoke, and the center of the radius is from the neck-yoke.

"Int. 39. In meeting an obstruction, or passing over plowed or uneven ground, what would be the practical operation of your machine, compared with Brown's, in that respect?

"Ans. Well, in my machine the obstruction would strike it nearer the fulcrum than in Brown's—a great deal nearer the fulcrum, and the dropper's weight is upon the long end of the lever—resting upon the long end of the lever—which would tend, as a matter of course, to hold it into the ground—hold the runner to the ground, and force it through any obstruction, cut, etc., without being so liable to be thrown out of the ground, and requiring less weight to hold it to the ground.

"Int. 40. In the practical operation of Brown's machine in passing over soddy ground, or uneven ground, what is the effect upon the runners in Brown's machine?

"Ans. The effect is, that it skips over—takes a great deal more weight in Brown's to hold it in the ground so that it will cut through the sod than it does on this, for the reason that you have more leverage on this.

"Int. 41. How is that leverage obtained?

"Ans. Well, we will call the point of the runner the fulcrum—the toe of the runner the fulcrum, and the obstruction, the resistance and the weight of the dropper, the power. Well, as a matter of course, the obstruction would come to the runners somewhere near the toe of the runner; and since, in this machine the fulcrum is at the toe, and in Brown's at the point of the tongue, why,

as a matter of course, we have a greater leverage in this machine than in Brown's; because the weight is on the short end of the lever; whereas in this, the weight of the dropper is on the long end of the lever. That is the difference.

"Int. 42. What is the effect, if any, upon the draft of the machine?

"Ans. Well, in Brown's machine, in planting in hard ground where it is necessary to force the runner into it, or trashy ground where there are obstructions liable to throw the runner out and leave the corn uncovered, it is necessary that he should have a supply of power on hand all the time, ready to prevent the runner jumping out and leaving the corn uncovered.

"Int. 43. And where is this power found for raising, in the Brown machine?

"Ans. Well, it rests betwixt the runners—over the rear end of the runner.

"Int. 44. Is there any difference in the draft of your machine and Brown's, and if so, what?

"Ans. Well, I claim that there is a difference in consequence of that fact—it not being necessary that there should be so much weight resting upon the runner in order to hold it to the ground—to prevent its jumping out and skipping over."

This applies as well to Selby's machine. The machine of Bergen is so arranged, as we have already pointed out in discussing the former patents, that when the operation of *raising the front frame* is performed, none of the weight is thrown upon the horses' necks, and in the operation of *planting* the weight of the tongue is balanced by that of the dropman. This is set forth in his patent of April 18th, 1865, on p. 3, as follows: "It is also apparent that by locating the dropman's seat in the *rear* of *the heel* of the runner, as clearly shown in figure 2, his weight is thereby made to balance, to a greater or less extent, the weight of the front part of the front frame and the tongue, the horizontal lower edge of the runner serving as a fulcrum for that purpose. The tongue, front frame and dropman's seat, being rigidly united, form a simple lever, for which, as already described, the lower straight edge of the runner is the fulcrum, the weight of

the dropman behind balancing the weight of the tongue and frame in front. By this means, the tongue of the machine, while being rigidly attached to the frame, is prevented from resting upon and bruising or otherwise injuring the necks of the animals, which is an objection to most machines of this class, as ordinarily constructed." As a very small part of the runner rests upon the ground, the friction is very much less than in patentee's, and of course the draft much lighter. This result is obviously a great advantage in the practical operation of planting.

There is another view which is fatal to the second claim of this patent No. 1039. It is in terms for a combination. That is, it is for a *lever* in combination with "a seed planting machine, composed substantially of frame work, and upon which the person who works the seed slides or valves sits or stands." We say this patent is void—

First, because it makes the operator of the seed slides or valves a part of the combination. It cannot be said that these words in the claim, which include the operator sitting or standing as a condition, are to be rejected as surplusage, for he has endeavored by their use to avoid automatic machines, which do not require an operator upon them. As these might anticipate him, and as he has thus seen fit to limit his claim, the court will not, in order to sustain the patent, make a new one for him. We cite, upon the point now made, *Morton* v. *The N. Y. Eye Infirmary*, 2 Fisher, 320; *Sickles* v. *Gloucester Manuf. Co.*, 1 Fisher, 228.

But, *secondly*, this patent is void because, being for a lever, in combination with "a seed planting machine," it involves precisely the same elements as patent No. 1038 for the *joint*. This lever, or, as he calls it elsewhere, "rear frame," could not of itself, like the runner, be the subject of a patent. The runner is a machine having a peculiar form of construction, performing a distinct function in the general operation of seed planting, and might, therefore, be the subject of a separate patent, and also

become an element in the combination which constituted the subject matter of another patent, or a separate claim in the same patent. But the lever being a well known mechanical power, like the screw or the wedge, could only be patented in combination, and here it is claimed in combination with such a seed planting machine as is described in the specification—that is to say, "composed substantially of frame work." This is supported on runners. This can only be raised by means of a joint, and this lever must have for its fulcra rollers or wheels. Here we have again the *five* elements, as in reissue No. 1038. You cannot reject any one of these other four elements, which are combined with the lever, and enable it to perform its function as described. We here again apply the sound doctrine of *Case* v. *Brown*. There his Honor Judge DRUMMOND limited Mr. Case to the *kind* of lever he used, that is, made the spring or weight an element in the combination, although not in language claimed, because it was a necessary part of the mechanism to enable the lever to perform the function of closing the valves, and was described in the specification. So here, the function of this lever is to "raise or lower that part of the frame work that carries the attendant and the seeding devices," but this frame work must have a support, therefore, of necessity, we take in the runners, which are its only support; indeed, his own definition of "frame work," as contained in No. 1036, includes the runners. Then this lever must have a fulcrum—the fulcrum is the wheels—but this lever only operates through the intervention of a hinge joint. So we bring into the combination all of these five elements, none of which can be rejected in the operation of raising or lowering the front frame. But it will be inquired, if Mr. Brown was the first to put these five elements into combination, and thus make a useful machine, could he not claim them? We answer, certainly; but not in more than one patent in the series—he could not claim in a separate patent the *joint* in combination with the other four elements, and

then in another patent the *lever* in the same combination, and so on with each of the five elements. Having done so, the patents are all void, for the reason that we cannot say which shall stand. They are all subjects of sale and assignment. A buys No. 1038, B No. 1039. Whose is valid? Which, on a surrender or reissue, shall claim the patent that may validly issue? A sues B for infringing his combination of the *joint;* B sues A for infringing his combination of the *lever*. What are their mutual rights? Obviously both cannot be valid—but they are twins—the offspring of one birth. Neither has precedence of the other. This is manifest from Sec. 13 of the Act of 1836, allowing the surrender and reissue where the specification is defective, and Sec. 5 of the Act of 1837, which allowed this reissue in several divisions; or, in the language of the Act, if "the patentee should desire several patents to be issued for distinct and separate parts of the thing patented."

Reissues 1036, 1038, 1039, are all void.

In point of fact, these three reissues, 1036, 1038 and 1039, are all void, the last two for the reasons just indicated, and the first as claiming a combination of three elements—1, frame; 2, runners; and 3, rollers, operating substantially as described, when the specification calls for a machine with *two* frames, which would necessarily drag in the joint, and, therefore, the five elements in combination making these three patents for substantially *the same thing.*

We are aware that we have before assumed, in this argument, that 1036 is to be limited to a claim of the three elements—runners, rollers and frame; but that view is assumed, and that construction given the patent, in order to save it from conflict with 1038, and while we concede that such construction can alone save it, yet we respectfully urge that this most liberal construction is not warranted. The claim is to "a seed planting machine of frame work, the front part of which is supported on not

less than two runners, and the rear part on not less than two wheels, the latter being arranged to follow the former, *substantially as and for the purpose set forth.*" These latter words, at the end of the claim, refer us to the specification to ascertain the extent of the claim. (*Morris* v. *Barrett et al.*, 1 Fisher, 461.) His Honor Judge LEAVITT, in this case, says: "While it is true that we are to look at the summing up to discover what parts of the machine he claims to have invented, still, if anything is needed to enable us to determine the proper meaning of expressions used in the claim, we must refer to the previous portion of the specifications for such explanations as may be necessary to understand the *office and purpose* of that which is claimed as new." (See also *Vance* v. *Campbell*, 1 Fisher, 483.) Counsel may contend that we must go into the specification to see the thing and its mode of operation therein described, and having done so, that we will there find a machine "set forth" with *two* frames, or two parts—a front and rear part, having an independent motion, and connected by a *joint.* That this independent motion of the two frames is the *key* to the whole series of patents, and of the essence of the invention. We agree to this, and therefore make this claim to "a seed planting machine," to be a machine not of one frame, but two frames—not rigid, but rendered flexible by a joint. This, then, gives us the five elements as the indispensable parts of the machine to enable it to perform its functions, viz.: runners, front frame, rollers, rear frame, joint.

These three reissues, 1036, 1038, 1039, being declared void, as being in conflict, covering the same combinations of devices. Mr. Brown retains 1040 for the auxiliary wheels, and 1037 for the runner (in which latter he is anticipated by Moffit, Abbott, Kirkman and Job Brown,) which remits him to his position of February, 1858, when he was allowed the claim for the runner alone. This is poetic justice only, for in his unworthy effort to *expand* his claims beyond his real invention, and thus "stop

the course of inventors," he has overreached himself, and he should make another surrender, and obtain a third reissue, modestly claiming the rude machine, with iron runners and log wheels, which he constructed and used in the latter part of May, 1852, and then forever abandoned.

REISSUE No. 1040. (p. 19.)

Although the appellant, in his bill of complaint, which was sworn to, alleged that the defendants were using the device covered by this patent, it is obvious, on an inspection of the machines, that this is not so, and indeed at the argument below it was admitted that none of the defendants infringed this patent.

REISSUE No. 1091. (p. 22.)

We now come to consider the second series of patents reissued on the patent of May 8th, 1855. On inspecting the model and drawings, and comparing the machine of 1855 with that of 1853, it will be found that Mr. Brown enlarged his rollers, increased the length of the side pieces or levers, which pass on either side of the rollers, and are bolted or hinged in the seed hoppers, connected these pieces by cross pieces, and upon this frame work, which has now for the first time become a rear frame in fact, he places the long seat for the driver, upon the front end of which he sits while the machine is planting, and to the rear end of which he slides back to raise up the runners when the dropman gets off in turning around. He also places a small projection under the inside of the hopper, called the lock stop or block, claimed in No. 1094, which prevents the rear frame from falling so low as to incommode the driver when he thus slides back on the seat. No other change is made in the machine of 1853 to make the machine of 1855 except the second valve, or flipper, in the seed tube, which we shall consider in discussing reissue 1095. Having thus secured a seat for the driver, he applies for a patent for his improve-

ments, and on the 8th of May, 1855, he makes and is allowed this claim: "Having thus fully described the nature of my invention, what I claim therein as new, and desire to secure by letters patent, is in combination with the hoppers and their semi-rotating plates, *d*, the runners, *A*, with their valves, *f*, and their adjustment by means of the levers and cams, and the driver's weight, for the purpose of carrying and dropping seeds by each vibration of the lever, *D*, and to regulate the depth of the planting as described." Two years and a half after this, Mr. Brown, on the 10th of November, 1857, surrenders this patent, and obtains a reissue with the following claim: "Having thus fully described the nature and object of my invention, what I claim therein as new, and desire to secure by letters patent, is in combination with the hinged frames, or hinge joint, *the locating* of the conductor's or driver's seat in rear of the supporting axle, so that as he moves forward or back on his seat, the rear frame may act as a lever for lowering or raising the seeding part of the machine, and thus throw it into or out of the ground, as circumstances may require, in turning around, or for passing over any obstruction, substantially as set forth."

Not content, however, with this reissue, Mr. Brown surrenders again, and on the 11th of December, 1860, obtains the five reissues 1091 to 1095 inclusive. The specifications of these several reissues contain such an amount of "nebulous rhetoric," as Justice GRIER terms it, that this poor driver's seat is enveloped almost beyond the possibility of discovery. The patents 1091, 1092, and 1093, seem to have called into requisition the ingenuity of the solicitor in devising words to cover up ideas, and we are at last fairly stranded upon a "bank of fog." They all, however, begin and end in a claim to the long seat, by means of which the driver, on sliding back to the extreme rear end, may use the rear frame as a lever to raise the runners out of the ground in turning around. To this complexion it must come at

last, and if there were any novelty in this it might be patentable, but there was no novelty in it. However this fact may be, the appellees do not use it, and that is the end of the whole matter. And we proceed to show this by an examination of the several reissues in order.

No. 1091 has two claims.

The first claim is "In combination with a seed planting machine that is operated *by hand*, *the placing* of both the driver and the person who operates the seed slides or valves upon the machine in *such* position that each may attend to his particular duty without interfering with that of the other, substantially as described." (p. 25.)

We observe upon this patent, as upon the first claim in reissue No. 1039, which was for "mounting the dropper upon the machine," etc., that it is void as claiming a *mere result*, an idea or action. It is not a claim to seats or stands, for the dropper and driver so located as to accomplish some novel and useful result described. We cite against the validity of this claim of "*placing*," etc., the cases cited upon first claim in No. 1039.

But if this be construed as a broad claim to placing a dropper on a hand planting machine, so that he may ride and perform his duty as dropper, that is, work the lever of the seeding device and plant in check rows, and to placing the driver so that he may attend to the team, and that each may attend to his particular duty, as thus specified, without interfering with the other, then this claim is anticipated by Job Brown, upon whose machine of 1851 his son rode, and Ivory Butler's daughter also rode, —the one moving the hand lever, planting in check rows, and the other driving the team; also, by his machine model, G. C. Lanphere, No. 2. It is also anticipated by Farley's machine, which was sometimes actually operated by hand, as Farley swears, and would plant, when so operated, in check rows, and upon which the dropper and driver could ride. True, on Farley's machine there were no *seats;* but this patent does not claim *seats*, for

the specification, on pages 23 and 25, *places* the dropper on a seat or *stand*. Remy & Kelly could also place the dropper as well as the driver on the machine, and the fact that in practice they did not, cannot avail, for the question is, what construction did the machine exhibit? —what was it manifestly capable of accomplishing without any substantial change of structure? and this machine was made and used successfully in 1849. So also Kirkman's machine, while it contained the *L* lever, exhibited devices for planting by hand, and when so appropriated, the dropper and driver could both ride. The machine of Finn was so constructed as that both dropper and driver could ride; Dodge so swears. (p. 700.) Therefore, if this claim can be sustained as valid in view of the existing state of the art, and not invalid as claiming a mere result, then it must be limited to placing them upon such a machine as is described in the specification, attending to the particular duty imposed by the structure of such machine. The duty of the driver is not alone to attend to the horses in this machine. On page 25 his duty is defined to be to change or shift his person backward on his seat, and thus overbalance the weight of the dropman and *raise* up the *front frame*, and when he performs this "particular duty" the front frame "is suspended to the rear frame at one end and the horses' necks at its front end, etc., by moving forward, etc., he forces the seeding apparatus into the ground." These particular duties are not performed by the driver in the machine of Selby, for in his machine the driver sits, under all circumstances, in the same position, and does not use his seat as a lever to raise the front frame by moving back on it, etc., but a special arrangement is employed for that purpose, to wit, a lever erected upon the main frame. Bergen's driver does not raise the front frame and dropman by moving back on his seat. In fact, as his patent states, the saddle is adjusted to its proper place at first, and there remains fixed. The dropman *gets off* when the front frame is to

be raised, and in that condition the weight of the driver raises the front frame without his moving back on the seat, and in all of these machines the runners are not suspended upon the horses' necks and wheels when thus raised.

As to the second claim in this patent, to wit, the so locating said seats *or stands* that the weight of one may counterbalance or overbalance the weight of the other for raising the seeding apparatus as described, the observations made upon the first claim show fully that the defendants do not infringe it. But it is *void* on the mere inspection of the machine, and the proof conclusively shows, from all his witnesses and our own, that the complainant cannot and does not accomplish the result of *over*balancing the dropper's weight by the driver's. The dropman invariably gets off when the seeding apparatus is to be "raised." Neither of the appellees seek to accomplish this result, and if they did they do it by substantially different means, producing the result in a substantially different way.

But Farley and Kirkman could do this very thing. The driver in their machines could obtain leverage enough to raise the runners with the dropman on, and Farley is old enough to ante-date this patent; he goes back to January or February, 1853, Brown only to 20th April, 1853. (See his testimony, p. 676.) Kirkman, of course, ante-dates him, and this claim is to seats *or stands*, not to seats alone, as will be seen by reference to the summary.

We here observe, upon these reissues 1091, 1092 and 1093, that placing seats or stands upon seed planting machines for the dropman and driver to ride, was older than the pretended inventions of this patentee. Remy & Kelly, Job Brown, Kirkman, Finn, and Farley, had done it, and if his form of construction would have enabled the driver to raise the runners and seeding devices *and*

the dropman, the machine thereby received no new function beyond Kirkman's and Farley's, when Brown raised the runners and seeding devices with the dropman, and therefore this last claim cannot be sustained. But as it will not accomplish the result claimed, that of itself avoids the patent. (See, on this point, the depositions of Pine, p. 573, Churchill, p. 589, Yarde, p. 604, Wills, p. 638, and, in fact, all the witnesses who testify to the practical working of the Brown machine.)

REISSUE No. 1092. (p. 25.)

The next in order is Reissue No. 1092. This claim is in terms to the long *seat*, and is in these words: "In combination with a seed planting machine, operated by hand, and having its seeding devices forward of the center of the wheels, and forward of the driver's seat, and a hinged connection; *the locating of the seat* in such relation to a line drawn through the centers of the wheels or ground supports as that the occupant of said seat may, *by moving himself*, or throwing his weight forward or backward on his seat, without the necessity of rising, walking or standing over or near the seeding devices, force the seeding apparatus into, or raise it from, the ground, substantially as described." (p. 28.)

We remark, first, if this function of raising the seeding devices by moving back on the long seat is to be limited to a seed planting machine operated *by the hand* of the dropman, riding, as described in the patent, contradistinguished from an automatic machine, then we say the claim is void as a claim to a result that cannot be accomplished, for, as we have observed in discussing patent 1091, the driver cannot, in the practical operation of the machine in the field, by moving back on the seat, raise the front frame with the dropper on. This is the uncontradicted testimony of the witnesses on both sides, but the inspection of the model is enough. It is there seen that the two arms of the lever are of about equal length. The weight of the dropman would therefore balance that

of the driver. But in addition to the weight of the dropman, the driver must raise the front frame, which includes the runners, hoppers, etc., which Mr. Bond swears (p. 307) weighs between 200 and 300 pounds, and we must add to this the weight of a half bushel of corn in the hoppers—30 pounds more. Therefore, even with a very light boy on as dropman, the driver could not overbalance this weight.

Whether this claim, however, be limited to a machine on which the dropman rode, or an automatic machine, it is anticipated by that of Farley, unless it be limited strictly to the use of the *seat* upon which to perform the result; for in Farley the driver moved, or walked back and forward on the frame, and performed this function. Kirkman's first machine did contain the *seat*. It is true no dropman rode, but the driver performed this function of moving back on the seat to raise the runners out of the ground.

Neither of the appellees uses the driver's seat to accomplish this result. This patent claims the "*seat* as a *lever* to raise up the front frame work and seeding devices," as therein mentioned; that is, the driver moves himself back on the seat, whose rear end "extends back of the line of the axles of the wheels."

We have fully explained already wherein the defendant Selby, by the use of a seat in which the driver remains stationary, and by the use of an independent leverage, not in any manner connected with the seat, avoids this patent; and while Bergen does use a long seat, he performs the operation in a substantially different manner—the driver remaining stationary, and the dropman *dismounting*. The arrangement of the adjustable lever bar and slotted joints on either side enables him to adjust the weights of the dropman and driver before commencing to plant, so as to balance the machine, in which case the saddle for the driver is screwed securely in place—is made immovable; and by means of this adjustment and arrangement of parts, when the dropman

dismounts, the driver's weight at once throws up the forward part of the machine, without compelling him to slide back on the seat. This adjustable lever bar, in Bergen, is of great practical advantage in that respect alone, for, as the witnesses say, the moving back and forth on this long seat is exceedingly inconvenient and laborious in practice, and renders the operator liable to accidents, which are obvious; and, besides, when he thus slides back, the seat is almost perpendicular, and it requires a skillful person to retain his seat under such circumstances. It is almost like rope dancing. This seat, therefore, being claimed in this patent simply as *a lever* to produce the result described, Bergen must use it in substantially the same way to perform this function, and we respectfully submit that he manifestly does not.

REISSUE No. 1093. (p. 28.)

The next reissue in order is No. 1093. This claim is, "In combination with a seed planting machine that has a hinged or yielding joint between *its fixed points of support*, and with its seeding devices between said points; *the so connecting* of the parts between said fixed points of support as that that portion of the machine carrying the seeding devices may be raised up out of the ground by the attendant riding on the machine, and be carried *by the tongue or horses' necks and the supporting* wheels, substantially as and for the purpose described." (p. 30.)

If this shall be deemed a valid reissue, then its limitations are very clear. They are—

1st. A hinge joint and seeding devices between *its fixed points of support.*

2nd. These fixed points of support are two, viz.: 1, the point of the tongue or horses' necks, and 2, the axles of the supporting wheels.

3rd. The *so connecting* of the parts between said fixed points *as that* the portion of the machine carrying

the seeding devices may be raised up out of the ground by the attendant *riding on the machine, and be carried* 1, *by the tongue or horses' necks, and* 2, *the supporting wheels*, substantially as described.

These latter words limit the construction and mode of operation to the machine described in the specification, and looking into it, we find that the attendant moves back on his long seat, and in thus changing his position and weight, uses the *seat* as a *lever* to raise the front frame through his weight; and the parts are so connected, that when the front frame is thus raised it is *carried* upon the two fixed points of support, viz., the horses' necks and wheels.

Selby, in his machine, as we have shown, does not *so connect* as that when the runners are raised from the ground they are carried upon two fixed points of support, but upon one only. He does not in that case throw additional weight upon the horses' necks.

2nd. The driver's seat in his machine is so arranged that in raising the runners he does not move back on his seat, but remains stationary.

3rd. The driver's seat is not by him used as *a lever* to accomplish the result.

4th. He employs an independent lever power to produce the result. He so connects the several parts as to produce the result of raising the runners by substantially different means.

Bergen so connects as that he raises the runners by a peculiar adjustable lever arrangement, and when he produces the result, of raising the runners—

1. The horses' necks are not one of the fixed points of support, but the tongue is raised from their necks. (See his patent for this statement of the *modus operandi*, as hereinbefore mentioned.)

2. The driver does not move on his seat, but remains stationary, the seat having been previously adjusted to the respective weights of the dropman and driver, so that when the dropman dismounts, the weight of the driver in position raises the runners.

If the patentee is not confined by this patent to the peculiar arrangement and connection described, then he is anticipated by Remy & Kelly, whose machine had, 1, a front frame with seeding devices, 2, a rear frame upon which the driver rode, 3, a hinge joint between, so that the driver using a lever raised the front frame and seeding devices, and when thus raised, they were suspended upon two fixed points of support, 1, the horses' necks, and 2, the wheels or rollers.

These three patents, 1091, 1092, 1093, are directly in conflict and void, for the reasons indicated in the discussion of reissues 1036, 1038, 1039. They do not point to any different part or arrangement of the devices, but all cover simply this seat or stand in combination with the other parts of the machine. They, in fact, bring into the combination the same elements, no more, no less, and as *all* cannot stand, neither can. The true standpoint from which to consider these several claims, is to assume that they are held and owned by different purchasers and assignees thereof, and then we are in position to examine their respective rights. We do not care to do more than make this point and ask your Honors to scrutinize these reissues, feeling confident that it is fatal to them.

Reissue No. 1094. (p. 31.)

The next in order is Reissue No. 1094, which claim is "In combination with a seed planting machine, *so made* as that the forward part of the machine can be raised up on to the supporting wheels, and there carried; a *lock* block or stop, *h*, which prevents the rear part of the frame from descending so low as to strike the ground, or inconvenience the occupant of the seat upon said rear portion of the frame, substantially as and for the purpose described." (p. 33.)

This device is such an obvious necessity in the machine as to suggest itself to any intelligent person, even though not a mechanic, who had operated it once. It therefore involved no exercise of the inventive faculty, and was

not worthy of a patent. But none of the defendants use it. Upon a mere inspection of the machine of Selby, it will be seen that as he does not employ a rear frame which tips down when the driver slides back to the rear of the long seat, nor any long seat, but one frame, rigid throughout, and when the runners are raised, this single frame is prevented from descending at the rear by the neck yoke of the horses, which holds the tongue *down*, and this neck yoke is the lock or stop. (See Selby's dep., p. 730; Dodge, p. 708.)

In the Bergen machine the form of construction is such that no similar device is employed, as is seen on an inspection of the model. Dodge says (p. 708), "In Bergen's machine there is a lock, but entirely different in its construction from that of Brown's, and it is a consequence of the slotted connection between the two frames." These slotted joints become rigid when the runners are raised to a certain point, and beyond that the tongue is raised upward, and of course the rear frame descends, but the neck yoke operates as a lock or stop, as in the machines of Selby and Haworth. This arrangement is discussed hereinbefore in connection with the other patents.

REISSUE No. 1095. (p. 33.)

The next patent in order is Reissue No. 1095. The claim is "*So* combining with a lever, by which both may be operated, a valve or slide in the seed hopper, and a valve in the seed tube, as that a half motion of the lever by the operator riding on the machine by which they are operated, shall both open and close the seed passages at regular periods, and pass measured quantities only, substantially as described." (p. 35.)

In presenting our views upon this patent, we will first advert to the state of the art. The use of valves in seed planting machines was old—much older than the pretended invention of Mr. Brown, himself being the witness, as will appear by a publication which was made

by him in October, 1860, in *The Chicago Tribune*, which is made a part of his deposition, on page 243, to which we shall have occasion to refer hereafter. It is in evidence in this cause that Jarvis Case, of Clark county, Ohio, in the winter of 1852, made a corn planting machine which planted in check rows, and he subsequently obtained a patent for it. His invention consisted of the combination of a valve in the seed hopper and a valve in the seed tube, and a lever with a spring or weight attached to the lever; so that, by the application of one force to the lever, the valves were simultaneously opened, and the spring or weight closed them. Previous to this invention of Case, one Charles Finn, of Laporte, Indiana, as early as 1851, invented a machine for planting in check rows. This also contained the combination of two valves and a lever, but it required two motions of the lever in this machine to plant each hill. That is to say, one movement of the lever carried a hill of corn out of the hopper and deposited it at the lower valve, but it required another movement of the lever in the opposite direction to drop this to the furrow. Case improved upon Finn in this, that he saved one of these motions, which was a material saving in a day's work; he so combined the valves and lever as that the same motion which carried the hill of corn from the lower valve and deposited it in the ground, also brought forward from the hopper and deposited at the lower valve the next hill. This saved one-half the labor. The fatigue in operating these levers was owing, not so much to the *power* expended, as to the muscular *motion*. This is well explained in the patent 1095 of Mr. Brown, now in question. So that in Finn it required two motions of the arm, or two movements of the lever, to plant each hill, while in Case it only required one.

Case was the first to devise the method of so arranging the valves and lever as to deposit the corn from the lower valve in the ground and place a new charge at the lower valve by one impulse or movement of the arm. This was

his invention: and while he did not, in his summary, claim the spring or weighted lever which performed the office of closing the valves, but the "so combining the two valves and lever as to accomplish the result," his Honor Judge DRUMMOND so construed the patent as to render this spring or weight a part of the combination. This was the improvement which Case made upon Finn.

Now when, in 1860, Case sued the complainant Brown in the court below for infringing his patent for this "double dropping" device, as it was termed, Brown caused a publication to be made in *The Chicago Tribune* (see his printed testimony, p. 243), in which article he said that he took this method of stating *what the facts were* about this double dropping principle; that it was *public property*. That it was used in a horse planting machine in 1848; in hand planters in 1850–51; and again in a horse planter in 1851–52. At this time Mr. Brown had not deemed himself the inventor of that principle, but affirmed that it was public property; but under the inspiration and manipulations of his solicitor at Washington, and, as we affirm, for no other purpose than to use as a *shield* in the suit of Case against him, he had a claim allowed him for his arrangement to produce this double dropping. It served its purpose with the jury in that case, and should be allowed to sleep. But he now seeks to use it as a *sword*, and turns upon those whom he informed that this was *public property*, and seeks to play the part of Mr. Case. But when his patent is examined in the light of the state of the art as exhibited in the machines of Finn and Case, it is manifestly void, upon two grounds:

First, because it is a claim to a result, and not to the particular means employed to produce the result.

It is void, secondly, in not distinguishing the new from the old, that is, in not setting forth wherein his device was an improvement upon Finn and Case—indeed, he expressly ignores the machine of Case—and falsely states the existing state of the art. He says (p. 34), "But in

the valves as *heretofore* used in the seed tube, it required either two motions of the arm to open and close them, viz., one to open it, and another to close it, so that two motions of the arm were required for every charge of grain dropped, or else the quantity of seed dropped from the hopper had no measured relation in time or quantity to that dropped from the tube." This would correctly describe the defect in the construction and operation of the Finn machine, which the solicitor evidently had in view, but it wholly ignores the Case machine, which performed this function, and obviated the very difficulty of the two motions of the arm to open and close the valves. He assumed that he would be able to prove that he was anterior to Case, and made that effort then, as he does now, but he most signally fails, and his patent must, in view of that failure, be held void, as it does not truly set forth the state of the art, although professing so to do. He acted at his peril, and must suffer the necessary consequences.

We here cite some of the many cases bearing upon the point, that this patent being for an improvement, and failing to specify in what the improvement consisted, and to distinguish the new from the old, is, for that reason, void.

In *Hovey* v. *Stevens*, 3 Woodbury & Minot, page 17, the patent was for a new and useful improvement in machinery for grinding tools. Justice WOODBURY says, "It is not that he has invented the whole machine for grinding, which he afterwards describes in his specifications, either as a new combination throughout, or as having new parts throughout, but that he has some new and useful improvement in the machinery *ordinarily used for that purpose.* The next inquiry is, what is that particular improvement, looking to the specifications and drawings? How is it described and distinguished from what is not new? When there is a summary setting out a claim to some particular novelty, that is to govern. * * * *

"The party may claim to have discovered some new

part of the machine which is useful, or some new combination, or, in other words, new arrangement of old parts, which is useful. Either are patentable, *but they are not to be described in the same way;* whichever is his particular improvement must be plainly stated; because the public, when making and using the same machine, have a right to know, first, what he claims to have patented and invented as new, whether new parts or new combinations only, and if new parts, what new ones, and if new combinations, *of what old parts.*"

* * * * * * * *

"The machine itself, *as a whole*, is described with sufficient clearness and certainty, as the counsel justly argued, unless it be whether the stock is permanent or movable, but this is not the difficulty. It is in the manner of the description, whether his improvement is meant to be as consisting in the combination with the whole, or with parts only of one or two of them, and if the last, which? and also whether it consists in such new combination of some of the parts, or of an invention also of some of the parts, and, if so, which? This is a fatal answer to everything claimed as new, except also the two motions, and the combinations of them are admitted to be not original."

In *Carpenter* v. *Smith*, Webster's Patent Cases, 530, quoted in the note to Curtis on Patents, section 131, LORD ABINGER says: "It is required as a condition of every patent, that the patentee shall set forth in his specifications a true account and description of his patent and invention, and what he claims to be new, and what he admits to be old. For, if the specifications state simply *the whole machinery* which he uses, and which he wishes to introduce into use, and claims the whole of that as new, and does not state that he claims either any particular part, *or a combination of the whole as new*, why then his patent must be taken to be a patent *for the whole, and for each particular part;* and his patent must be void *if any particular part turns out to be old*, or the combination itself not new."

In *Moody* v. *Fisk*, 2 Mason's Reports, 115, Justice STORY lays down the doctrine where the patent is for a new combination of existing machinery, and does not specify any improvement excepting the combination, and if the combination be not wholly new, but, up to a certain point, has existed before, and the patentee claims the whole combination as new, instead of his own improvements only, and has had a patent for the whole machine, doubtless his patent is void, for it exceeds his invention. (See also, Curtis on Patents, section 94, and note.)

The rule for describing an improvement of a machine is stated in Curtis on Patents, at section 233. He says: "In describing improvements of a machine, or, what is the same thing, an improved machine, great care must be taken not to describe *the whole in such a way* as to make it appear to be claimed as the invention of the patentee. The former machine, or other thing, should be set forth in the patent sufficiently to make known, according to the nature of the case, what it is that the patentee engrafts his improvement upon; he should then disclaim the invention of the thing thus referred to, or describe, and state distinctly his improvement as, the thing which he claims to have invented." (7 Whea. 356—433.)

Now, Brown's improvement on his former machine and that of Job Brown's simply consisted in adding the lower valve or flipper in the seed tube; his machine of 1853 contained only the valve in the hopper. But Case and Finn had this lower valve also, and his patent should have correctly and truly set forth the state of the art, and wherein he had improved upon the existing machines, whereas, he untruly sets forth the state of the art, and claims the entire device as new. It is fully conceded that Job Brown and others used the dropping device containing the valve in the hopper, operated by the lever. That was old, public property, and in long use; Brown simply added a second valve. That was the extent of the improvement, and he should have so stated.

But he is estopped from setting up any claims under this patent. He pretends (but falsely) that he invented this very device in June, 1852, and his brother-in-law, Hibbard, also so swears, and he says the reason it did not appear in his model of the machine patented in 1853, was, that the model maker, by inadvertence, omitted it. But it appears in his model and specification of 1855, and he makes no claim to it as his invention at that time. Again, in his reissue of November 10, 1857, he makes no claim to it, for, as he said in his *Tribune* manifesto against Case, the principle was old and in public use. Here the public are invited to use it. Could an equitable estoppel be stronger? But in Dec. 11, 1860, he, for the first time, discovers that he is the inventor of this principle, and obtains this reissue in order to make a *prima facie* case against Jarvis Case in his suit with him; but as the cause did not call for any construction of the patent, the Court did not, therefore, pass upon it. It could not in that suit be declared void, as we trust it will be in this. It should pass away with the occasion which gave it birth, and hereafter make no sign.

Bergen's Seeding Device.

But Bergen does not use this double-dropping device. He accomplishes the result by an entirely different combination of elements, and omitting the lever, and for this device or combination he is allowed a patent. (See his patent of April 18th, 1865, tenth claim.) It is in these words: "I claim operating the seed slides by applying the power direct to the handle that moves the slide, *without the use or intervention of a lever.*" But it is insisted that the *handle* that moves the slides is a mechanical equivalent for the lever. We deny it; and proceed to show *why* the complainant, Brown, is compelled to employ a lever, and why, by his arrangement, the defendant, Bergen, is not. Brown uses a hopper so constructed as that the weight of the entire mass of corn presses upon his

slides or oscillating plates; over these slides or oscillating plates he is compelled to use a metal cut-off or strike. The consequence is, as the proof shows, (Sisson, pages 653–4), the grains of corn will sometimes clog in passing under the cut-off into the aperture, and in such case are cut in two. This, as the grain is very dry and hard, requires a great deal of *power*, which can only be obtained by the intervention of *a lever*, or some mechanical equivalent. The dropman, on such occasions, must instantly throw sufficient weight upon the lever to cut the grain in two, or the clogging will prevent the planting at the cross-furrow at the moment of crossing it. So that, as this clogging often occurs in practice, there must be kept in reserve a power to be exercised when the occasion calls for it, and there must also be provided the appropriate means for employing it, to wit, the lever.

Now, the seed hopper of Bergen is so constructed that but a small part of the entire mass of grain lies upon the slide; next, the slide is made of a narrow piece of iron or steel, containing *a groove* leading into the aperture, which facilitates the movement of the corn under the cut-off into the aperture; next, he employs a cut-off or strike of rubber, so that projecting or clogging grains are stricken back by the rubber, and form no obstruction to the movement of the slide. By this arrangement the slides may be successfully moved by applying the power directly to them, without the intervention of a lever, or any substitute for a *lever*. But to enable one person to operate both slides with one hand, he connects them by an iron rod, which, to prevent friction of the slides, is suspended upon posts, through which it passes, and upon this rod is attached a handle to move it; but this does not operate upon the lever principle—there is no fulcrum. In fact, as is obvious, the power is applied *directly* to the slides. Now, to say that applying the power directly to the slides, and thereby moving them, is equivalent to employing a lever, because in either case the slides are moved, is to ignore the use of mechanical

powers, and is to say that the muscle in the one case is an equivalent for the lever in the other.

This arrangement of Bergen, by which he dispenses with the lever, obtains a new and valuable result over Brown, for, first, it saves muscular motion, which is a serious matter in a day's planting. In the machine of Brown, the arm of the dropman on the lever traverses a distance of about eight inches in each direction to accomplish the dropping, while in Bergen it traverses only two and a quarter inches. (Sisson, page 654.) This is owing to the form and arrangement of the slide in combination with the tube, by which arrangement the moment the slide moves three-fourths of an inch, the valve is sufficiently opened to allow the grain to drop into the tube, while two and a quarter inches complete the full stroke to close the valve again; and as it is important the moment the machine reaches the cross-furrow to drop instantly, this arrangement of Bergen has a decided practical advantage over Brown in insuring accurate dropping. This William P. Sisson testifies to on page 654; he had operated the Brown machine for many years, and understood the practical working of both in this particular.

Another advantage of the Bergen arrangement is, that the dropman is saved the *jar* which necessarily is occasioned, when almost in an instant he encounters, in the Brown machine, clogging grains which must be cut in two, and this damage to the grain is also obviated, which is an important consideration. But we do not care to enlarge further upon these differences of construction. The claim of Mr. Brown is an exceedingly narrow one, if valid, and the department have, with his device before them, decided that Bergen's device, in dispensing with the lever, was a substantial change in the eye of the law, from all others containing levers, and there we are content to leave it. We may, however, here mention that this form of hopper, rubber cut-off and seed slide are patented to Bergen, as hereinafter set forth.

We next invite particular attention to the construction and practical operation of appellant's and appellee's machines respectively, in addition to what has already been said on the subject.

Appellee Selby's Machine—Construction and Practical Operation.

The appellees, Selby and others, are large manufacturers of corn planting machines, and make the machine which was invented and patented by James Selby. His first patent was granted August 30, 1864; surrendered and reissued October 6, 1868.

While, as we have before observed, there is great similarity in construction between the machines of Selby and Haworth, yet there are certain marked differences. They, in common, have a single rigid frame extending from the point of the tongue to the extreme rear end, differing, in this respect, from the front frame and rear frame of Brown, hinged together. They, in common, hinge a runner at its toe to the front part of this rigid frame. They, in common, have a seat for the driver in which he remains stationary while performing his duties. They, in common, employ a lever erected upon the main frame for raising the runners. Having no rear frame, of course they do not, as does complainant, use it as a lever for that purpose. But their respective lever arrangements, while differing from Brown, are different from each other; and while the runners in Selby and Haworth are attached at the *toe*, it will be seen that the construction is so different, that when the runners are raised in Selby, they and their framework raise above or over the main frame, while in Haworth the motion is *underneath* the main frame. This difference in construction called for a different lever arrangement for raising the runners in the respective machines, and the department recognized the substantial difference by granting Selby a patent for his mode of construction. The first claim in his reissued patent is for "the *main frame* mounted on

two wheels and having the runners pivoted at their front end to the front part of the main frame, substantially as described."

And the department has also recognized the substantial difference in his *lever* arrangement from all prior machines, and in the same patent allowed him a claim for that device, and we specially call the attention of the Court to the other claims in this reissued patent, which show that his form of construction is regarded in the Patent Office as radically and substantially different from that of complainant's and all other machines.

The valuable practical results attained by this form of construction, have been to some extent discussed before. They are, mainly—

1st. Lighter draft, especially in hard or clay soil or over sod. This results from hinging at the toe of the runner. The *toe* being the fulcrum and the dropper sitting on the *long* arm of the lever, less weight is required for overcoming the obstruction of hard soil or sod; while in Brown, the point of the tongue on the horses' necks being the fulcrum and the dropman consequently sitting on the *short* arm of the lever, more weight is required for overcoming these obstacles. In such case, in Selby, the driver, by the lever arrangements, counterbalances that part of the dropman's weight not required for pressing the runners in the ground, and relieves, to that extent, the horses; while in Brown, the entire weight of the dropman is required to keep the runners in the ground, which makes the draft of the machine very heavy.

2nd. When the runners are raised in turning around, the entire weight of them is thrown upon the wheels, thus materially relieving the horses' necks from such weight, and also from the bruising which the jerking of the tongue in the neck yoke produces; while in Brown, the weight is upon the wheels and horses' necks.

3rd. Greater flexibility; for in the Brown machine a wedge is required between the frames, as described in his patent, to limit the penetration of the runner, which in

effect renders his machine rigid like the Kirkman or Brinkerhoff machines; that is to say, prevents the runners and rollers from moving independently, if this be deemed an advantage in planting, as it may be.

4th. The driver has an immovable and comfortable position, and is not subjected to the fatigue of "pitching backward and forward" on a long seat, to raise the runners in turning around, and to depress them in harder soil. The uncomfortable position of the driver in Mr. Brown's machine when the runners are raised, by sliding back on the seat, is seen in the fact that when this function is performed the seat is almost *perpendicular*, and, of course, he has the greatest difficulty in holding on.

Appellee Bergen's Machine—Construction and Practical Operation.

The defendants below, Bergen and Sisson, manufactured under the patents granted to Bergen, respectively, December 1, 1863, reissued April 18, 1865, and the patent of March 7, 1865. These patents secure to Bergen the machine which he manufactured in all its operative parts. The claims allowed to him in these several patents are broad and utterly inconsistent with the idea that in construction and mode of operation he copies after the model of Mr. Brown and infringes upon him. Among these claims are the following:

Under patent of December 1, 1863, surrendered and reissued April 18, 1865—

5th claim, "The revolving seat for the dropman, combined with a seed planter, constructed and operating as and for the purpose described."

8th claim, "The slotted joint connecting the front and rear frames when the draught of the rear frame is effected by this coupling alone, and so as to allow a vertical movement of the front or rear frame, as and for the purposes set forth."

9th claim, "I claim locating the dropman's seat in rear of the heel of the runners, for the purpose of balancing

the weight of the front part of the frame and the tongue, as and for the purposes set forth."

10th claim, "I claim operating the seed slides by applying the power direct to the handle that moves the slide without the use or intervention of a lever, as set forth."

The patent of March 7, 1865, to Bergen, contains, among others, the following claims:

1st claim, "The runner, *D*, having a concave edge along its front part, and a slightly descending straight edge from *a* to *a*, as shown and described."

2nd claim, "I claim uniting the front and rear frames of a corn planter by means of the curved slotted bar, *f*, and bar *g*, in combination with the loose joint, *d*, *e*."

4th claim, "I claim the hopper, *c*, when constructed as herein set forth."

5th claim, "I claim the plate, *k*, when constructed and used as and for the purposes described."

7th claim, "I claim the seed tube, *E*, when constructed as shown and described."

8th claim, "I claim the rubber cut-off, *j*, when constructed and operating as herein set forth."

9th claim, "I claim the sliding rod, *k*, having the bent arms, *t*, and operating in conjunction with the standards, *j*, and seed slides, *O*, as and for the purposes set forth."

It will be observed that these claims cover those parts of the machine which distinguish it from all the old machines adduced in evidence, as well as those of appellant and the others, and they involve the very structure of the machine.

The practical results reached by Bergen, which have proved so beneficial in the operation of the machine in the field, will distinguish his machine from that of Brown's, estimating alone from that consideration. The defects inherent in the peculiar construction of the complainant's machine have been already pointed out, being, mainly, heavy draft upon the animals in the different operations of the machine in planting, turning around, etc., especially planting in hard or clay soils, and the

fatigue to the driver in performing his duties, and to the dropper in moving the seed-dropping lever, the latter "being compelled to extend his arm back and forth, constantly and rapidly," during the long day's operation of planting.

These defects are in the main remedied or much diminished by the peculiar arrangement of Bergen. By this arrangement he makes a light machine, dispensing with the clumsy and heavy side pieces on the outside of the wheels, making spoked wheels, with an exceedingly light front frame, an adjustable lever bar for the easy lifting of the front frame, and the adjustment to the relative weights of the dropper and driver respectively, and relieving the horses' necks materially, and the arrangement of the seeding device, by which the lever is dispensed with, and greater accuracy in planting secured, with one-fourth the muscular motion required in the *lever* machines. In bringing before the minds of the Court the great practical advantages of this machine, we think we cannot do better than to incorporate into this argument the language of Bergen and Sisson, as contained in their circular to the public, touching this machine. They say :

"The true test of a corn planter is a *machine that does good work on all kinds and conditions of land;* on cloddy or soddy ground, foul, wet or dry land, on back-furrows or across dead-furrows. It is also essentially requisite that the seeding device be made perfectly simple and easy to be understood by any common laborer, and so arranged that it does not require an expert to drop the seed exactly in the crossmarks, and deposit all seed with certainty in measured quantities without injuring a single grain.

"A corn planter should not be constructed in such a manner as to require the *horses* to carry part of its weight on their necks in order to control the depth of the planting. We have furnished an *adjustable lever power*, which, so far as we know, has not been produced in any other planter, and by which the farmer can choose, from his men or boys, one to occupy the dropman's seat,

regardless of his relative weight to the driver. When corn planters are put to the test on these various points by experienced and practiced farmers, the *relative merits* of the different machines will be fully developed.

"How far we have succeeded in overcoming these objections and supplying these deficiencies, we cheerfully leave for the farmer to judge, after a careful inspection and thorough test of our machine.

"We take pleasure in calling the attention of farmers more particularly, and more in detail, to our method of providing against the objections we have named.

"And first among the anxieties entertained by the farmer when he commences to plant, is: does the machine drop correctly and regularly, and can the corn be put precisely in the crossmarks? This is important in the highest degree. To secure against all fears on this score, we have first *constructed our seed hopper* of iron in such a form that all the seeds are conducted down *into a narrow channel, directly over the depositing slides*, and are thereby sufficiently confined to insure the filling of the holes in the slides. The hopper being *iron* and securely bolted to the plate below the seed slides, no trouble can come from decay, swelling in wet weather, or shrinkage in dry weather. Next, we make a small iron seed slide, *formed on its bottom side so that chaff or dust cannot fill in below it*, and impede or obstruct its easy action. On the upper side of this slide we have the smooth, flat surface, with *a short groove* cut back from the outer edge of the measuring holes, the object of which is to assist the seed in filling the holes regularly, and to prevent any damage to grains that are only partly entered. *We use a rubber cut-off*, instead of *iron, which, in conjunction with these grooves*, strikes back the seed without the slightest damage to it or the *rubber*, and never occasions *a catch or jar to the dropman's hand.*

"Two things are indispensable in connection with any dropping mechanism to make straight rows both ways. The first is, a proper guide for the eye. Usually, planting machines provide a crooked pointer. The dropman soon becomes weary trying to sight lengthwise of this stick, and throws his head to one side to catch sight of the extreme end. It will readily be seen that his sight will strike the ground in a direct line from the eye, and at an angle with the planter. Now, if he confines himself to that position, he may after a time be able to guess pretty nearly when to drop; but this can scarcely be ex-

pected, and all experience proves to the contrary. He will be continually changing his head, looking from one direction and another, at the point of the stick, consequently the work must vary in the same ratio. This, in part, accounts for what farmers term the crooked way in planting. To obviate this constant changing, ever varying sight, we have discarded the pointer, and placed instead the front side of our seed hopper, perpendicular, and so as to give the operator a *gun sight* along its plain surface. Having arranged for a close sight, which the eye can catch readily, the next difficulty to surmount was a long stroke of the hand before the seed could be deposited, which is required from the very nature of a lever. We discarded the lever, also, and placed handles on a sliding device, which moves only two and one-fourth inches for a full stroke, while the first three-fourths of an inch the hand moves opens the tube valves enough to deposit the seed, which is held by it near the ground, and as a further security, we have made openings in the rear of the seed tube, into which the driver can look while the machine is in operation, and see that it is doing its work properly.

"Another and very serious objection to many planters is a want of flexibility. If the farmer desires to plant across dead-furrows, the runners, instead of being permitted to go down into the furrows, are carried over them on the horses' necks. If the ground is soddy or cloddy, and the old corn stubs and roots lay about, the same unyielding principle in the machine lifts the runner out of the ground whenever the wheel passes over one of them, and often deposits the seed on top of the ground. This we have remedied by our slotted joint coupling, by which the rear part of the machine is drawn, and there is no hap-hazard to this movement. It is regular, easy, and free in its operation. In the center of our planter we place our changeable lever power, by which the front part is elevated to allow the planter to be driven about, to and from the field, turned around without dragging the runners. These levers operate in perfect harmony with the slotted couplings, and give the farmer the privilege of placing a man weighing two hundred pounds on the dropper's seat, with a driver of one hundred pounds weight, or reverse them, as he chooses. All that is required to be done is simply to remove one bolt and place it where the nip of the lever will be lengthened or shortened, as circumstances require.

"It is always desirable, in the construction of any and every farm implement, to relieve the team from all the burden possible. To give easy draft, we have substituted a large spoke wheel, with a bent oak rim, covered with a full iron tire, welded and shrunk on, the hub and axle constructed on the carriage axle principle, and thoroughly protected against any dirt or grit. In wet or muddy land, a scraper that will clean the wheel perfectly clean is absolutely necessary. This we provide, and suspend it on a roller, so that it is forced by the driver's foot firmly against the tire, and leaves the wheel thoroughly cleaned.

"Another important consideration, to obtain light draft in a planter, is to avoid the friction of sliding or dragging as much as possible. On this point, in the construction of our planter, we have expended much thought, and have carefully tested our theory in the field, on all kinds and conditions of land. It will be observed that our runner is formed exactly the reverse of all others. At first sight this appears to be so radical a change that by many its practicability is doubted. Let us examine this, then, by the light of experience. Every farmer knows that the convex runner is very liable to clog on foul land. The loose stalks and straws on the surface wrap around the edge and accumulate until they cut a broad furrow, and finally the team must be stopped and the runner cleaned. By this, some time is lost, and poor work done. We form the runner so that it rises above this loose trash, and does not come in contact with it until it is fairly on top of it, and consequently presses it directly down into the ground, and cuts through or passes over readily, *because the downward pressure* holds the stuff fast in the ground. It will be readily seen that this form does much less *sledding*, and requires much less weight to force it into the ground. As a matter of course, the less weight on the runner, so much the more on the wheels, the friction then being less in the ground, the wheels larger than is common, the axles perfect and frame light, of necessity the machine draws easy. Another burden, however, was yet on the team in the old planter. The horses were required to carry part of its weight *on their necks, to regulate the depth of planting.* Having obtained perfect control of the planter by means of *our levers*, we erected an elevated seat for the dropman, and placed it so that his weight was behind the rear bearing of the runner, consequently serves to overbalance the

downward pressure of the tongue. It will be seen that the *heavier the dropman*, the less weight of tongue on the horses' necks. For ease and comfort to the operators, we made a movable seat saddle for the driver, and the elevated seat for the dropper. These two improvements are now being used on several other machines. For those who want a drill attachment, we have constructed a very simple gearing which gives a variety of speeds, never fails to operate, and receives no damage by backing while in gear."

While the appellees are manufacturing under their own patents, it does not, of course, follow necessarily that their machines are not infringements. But the law on that subject is, that the granting of a subsequent patent is *prima facie* evidence that the devices thus patented do not infringe the prior patents of one who alleges the infringement. (*Burden* v. *Corning*, 2 Fisher, 497, citing same case, 15 How. 252. *The Am. Pin Co.* v. *The Oakville Co.*, 3 Blatchford R. 190.)

APPELLANT'S MACHINE OF 1853—HOW WAS IT OPERATED PRACTICALLY?

Aaron Yarde, (p. 601, Int. 8,) says, in turning around, the runners were raised by the dropper getting *off* and the driver *jumping on* the platform behind the wheels; and again, on page 604, Int. 66, he says, "My recollection is (when the runners were raised out of the ground) that the driver got *on*. That when the *dropper got off*, that the driver got on behind."

Int. 67. "Did he stand on the platform behind?" Ans. "Yes, sir."

Int. 68. "And by means of his weight raised the runner out of the ground?" Ans. "Yes, sir."

This witness was a neighbor called in by Mr. Brown to witness the operation of the machine.

It is thus shown, that when the runners were raised, the dropper got off of the machine, and the *driver* got up and rode on the rear cross-bar or frame work, as this wit-

ness elsewhere describes it, and thus raised the runners and front frame.

The complainant and his learned counsel have shown much reluctance in looking into the history and practical operation of this abortion. They did not even produce a *model* of it, and defendants were compelled to incur the expense of procuring one. They do prove, however, that this machine thus made and used after May 20, 1852, was taken by Hibbard, as Brown says, *soon* after using it, and left with one Aaron Bell, in Ogle county, whose receipt for it, dated June 2, 1852, is produced; he agrees to return it to Brown by the next March, under the penalty of TEN DOLLARS. It must have been a valuable machine. (See Hibbard's deposition, p. 89.)

Now, as the driver actually rode on this machine to raise the runners, what becomes of his reissues on the patent of 1855, or the second form of the machine, at least so far as raising the runners by the weight of the man *on* the machine is concerned?

This machine is proved to have been a rough concern, made with heavy *cast iron* runners and rollers sawed off of the end of an elm log, very small. He used it twice, once in his own field and again in a neighbor's, Alfred Brown, and then abandoned it. Mr. Brown himself swears that he never made another like it. That he substituted in the next planters *wooden* runners shod with iron, larger rollers made of lumber, drum shape. The side pieces longer and straighter, so as to place the driver upon it. (See his deposition, p. 218, Int. 225, etc.)

GEORGE W. BROWN'S MACHINE OF 1855—HOW WAS IT OPERATED PRACTICALLY?

The uncontradicted testimony in respect to its practical operation is this:

First. That when the runners and front frame are raised in turning, the dropper invariably gets off.

Second. That to accomplish this result, the driver then slides on the long seat to the rear of it.

Third. When the runners are so raised, their weight is carried upon the end of the tongue on the horses' necks and on the wheels.

Fourth. A WEDGE is placed under the front frame to limit the penetration of the runner; and, in fact, in mellow ground, the machine will not perform its duties properly without the use of this device. The runner will then sink deeper than is desired. But in practical operation this wedge so limits the flexibility of the machine, that it then becomes almost rigid like the Kirkman and Brinkerhoff planters. The runner will not then drop down into a depression or dead-furrow, but be carried over it, and suspended on the wheels and horses' necks, and the machine fails to plant. Such is the testimony of the farmers who have operated it under these conditions. This necessity for the wedge, and the infirmity attending its use, demonstrate the disadvantage in Brown's arrangement. This wedge cuts an important part in this machine, and the wonder is that Mr. Brown's solicitor overlooked it when he obtained the reissues; it is more worthy of a patent than the lock stop or block.

Fifth. By hinging at the rear of the runners, the weight of the dropman is borne upon them in the operation of planting, thus rendering the draught upon the animals very heavy; and secondly, when the runners are raised, the animals must bear upon their necks the increased weight of the front frame.

For the other features of the practical operation of this machine, and as contrasted with that of defendants, we refer to the previous portion of this argument.

GEO. W. BROWN ABANDONS THE MANUFACTURE UNDER HIS PATENTS.

But the imposing fact which establishes the substantial differences between the machines of defendants and appellant is that testified to by Mr. Brown himself. It is that *he has abandoned the manufacture of machines*

under his patents, as heretofore made, and is copying, so far as he safely can, the machines of the defendants.

The model painted *blue* is his present machine. It has spoked wheels, and the elevated seat for the dropper resembles Bergen's. He has disused the side pieces on the outer side of the wheels, constituting a part of the rear frame work. He has abandoned the long seat upon which the driver was wont at his peril to disport himself, sliding or "pitching backward and forward," and employed in its place the seat at the end of a long lever resembling Haworth's, upon which the driver is stationary, compelling the employment of treadles—a clumsy arrangement for depressing the runners and supporting a portion of the weight of the driver, and abandoned the lock-stop or block. Mr. Brown is thus compelled to yield to the improvements in the art invented by the defendants, or surrender the field. Like a prudent man, he tries to meet the demands of the farmers. These changes he says are substantial; he calls them new principles introduced into his machine. It appears from his testimony that for the spring sales of 1867, he made some 1600 of these modern machines, and no doubt now makes *all* after this pattern.

We here beg the attention of the Court to the testimony of Mr. Brown on the construction of his present machine, as found in the complainant's printed book, on pages 246, 247, and 331 to 334:

"C. Int. 360. Do you construct machines now substantially as you have done in former years?

"Ans. I am not making any this year SUBSTANTIALLY *as I have done* in former years—that I know of.

"C. Int. 361. State what kind of machines you are now making, and how they differ from the machines which you have made in former years.

"Ans. I am making a machine with a narrow runner and tube piece of wrought iron and wood—something near the height of fourteen inches—small seed boxes and one cross bar bolted on the under side of the seed boxes—nose piece and two braces and a tongue, and an iron cross bar at the rear end of the hopper—with two iron

legs elevated some eight or ten inches—with a round seat on it—a lever board bolted under the seat—with round seeding plates—cap over the seed wheel—with two arms running back from the inside of the seed hopper, connected with coupling bolt through the seed hopper—with a cast iron axle bolted on to these arms. These cast iron axles have a lug that passes over and under the arm, with notches into it, and they have a cast iron coupling piece that turns on the center between those notches, and turns up into the notches on each side of the machine, with a cross beam bolted on to this cast iron coupling, and two upright cast pieces on this cross beam in the center, or nearly that, with a seat bar cast in between these uprights, and extending down and hanging on the eye in front of the planter, and extending back far enough in the rear on the cross beam to give the necessary purchase that the driver wants in balancing up the machine—two treadle pieces secured by a hook with the coupling bolts passing through in the seed boxes, resting on to the iron cross bar at the rear end of the seed boxes, and running back for the driver to place his feet in or on—when he sits in the seat that he occupies in planting. My reason for not making any of the old style planters this year is because we have five hundred or upwards of the old style on hand, and the new style that we are making—we calculate to make the machines to run about as the people want them—they have a wrought iron concave open wheel.

"C. Int. 362. In the machines as you now manufacture them, is the driver stationary in his seat, or does he move back and forward on the seat to elevate or depress the runners?

"Ans. The driver is stationary in his seat. When he turns his weight on the fore part or rear part, by changing his muscles—I suppose that would be proper. When he bears on his feet he throws his weight on the fore part with the dropper—if he bears on the seat he balances the dropper's weight in a great measure or mostly.

"C. Int. 363. What is the office of the treadles in the machine as you now manufacture it?

"Ans. He can hold the right side down harder if he wants to—and on the left side—or both alike. If the ground is hard on one side, he can force that side down—if it is mellow on the other side, he can ease his foot on the opposite side. I don't know as I answer that plain enough.

"C. Int. 364. Do you use spoked wheels now?

"Ans. I do.

"C. Int. 365. Is there any change in the construction of your dropper's seat?

"Ans. The dropper's seat is different from the seat that I formerly made.

"*By Mr. Douglass.*

"C. Int. 366. Describe the difference.

"Ans. The seat I formerly made was square—nailed on the two cross bars. The seat I now make to the NEW STYLE MACHINES is round, and bolted on to the legs."

DATES OF APPELLANT'S INVENTIONS.

We now call your Honors' attention to the dates of Geo. W. Brown's pretended inventions. He claims:

1. That he made a model of his machine, patented in 1853, in January or February, 1851.

2. That he made a half-size machine and planted with it in May, 1851, like the model.

3. That he put a vaive in the *seed tube* of this half-size machine in June, 1852, to effect double dropping.

And we proceed to examine these pretenses, alleging them each and all to be *false*.

DID GEO. W. BROWN HAVE THE MODEL OF THE CORN PLANTER IN 1851?

He swears himself that he did make such a model in January or February, 1851. He says that he showed it to his nephew, Van Rensselaer Brown, and his wife, who were there on a visit, previous to going to Iowa in the spring of 1851; that he thought Hibbard would remember about it, but Hibbard had informed him that he could not remember of ever having seen it. He describes that model, and his description of it makes it resemble the model of his machine patented in 1853. He says he sent that model, some time in the next fall or winter, to his brother Solomon in New York City, (p. 211, Int. 50), to

get a patent for it, but he does not swear Solomon with respect to it, although he admits that Solomon was at the time of his testifying, and had been for several years, in his employment at Galesburg. He does swear his nephew, Van Rensselaer Brown, on this point, who testifies that that model resembled in all respects the machine as Brown *now* makes it, and that, of course, makes it different, essentially, from the model of the machine patented in 1853, and he is therefore unsupported; nobody else saw that model, as far as the testimony shows; none of his nighbors saw it, and none of his family are sworn in respect to it, except this nephew, Van Rensselaer Brown, and his wife; the latter, however, is not sworn as a witness in the case*; we are left quite in the dark as to whether she has any recollection of it. The inference, however, is, that Brown had as bad success in getting her to try and remember about it, as he had with Hibbard. He says he fetched this model away from the Patent Office in 1853. (p. 211, Int. 55.)

On cross-examination, he says he commenced to build that model in January or February, and completed it before he had built the half-size machine. He kept the model in his house, but he says he didn't show it to his neighbors when they came to the house to write the certificate, after the experiment with the half-size machine. He might have done it, and he might not, but he has no recollection whatever upon the subject. On the cross-examination, he says that he may be mistaken about having sent this model to his brother Solomon. He knows that he corresponded with his brother Valentine, who lived at Brown's Corner, Saratoga county, New York, and that he corresponded a long time with him about it. He got him to go on with it, but whether he sent the model to his brother Valentine, or not, before he sent it to Solomon, does not recollect; that Solomon was doing business that spring in Virginia, that is, the spring of 1851; that he commenced to correspond with his brother Valentine about it in the summer of 1851—may be earlier;

could'nt tell; might have been later; and that he does not now remember whether he sent the model to Solomon or Valentine, but only remembers that he sent it—so Solomon got it some way.

Admits that he was sued by Jarvis Case in this court about September, 1860, for an alleged infringement of Jarvis Case's corn planter; and that his brother Solomon was a witness for him in August, 1861, and present at the trial, and testified on his behalf in that case with respect to that model. (p. 233.)

He says that, according to his best recollection, Solomon testified that he left the model at Washington in the Patent Office, in April, 1852, but he may be mistaken.

He is then asked, if Solomon did testify that he, George W. Brown, sent it in 1852, and that he, Solomon, left it either in June or October, 1852, if he testified correctly, and he answers, "I can't tell, sir." He is then asked, if Solomon testified that he got that model in June, 1852, from him, would Solomon be likely to be correct? He answers that Solomon might be, and he would endeavor to be.

He says that he claimed that he invented the general construction of the machine, and the runner to put the seed into the ground.

He admits that he did not swear Van Rensselaer Brown as a witness in that suit. He says he made no specification in applying for the patent upon that model, and that his brother just left it there in the office; and he thinks he took it away from the Patent Office in August, 1853; and he says he then took that model at that time to his brother Valentine's residence, in Schenectady county, and there he changed it over; and that that model afterwards contained the flipper; and in the fall of the year he gave it to Joshua Bruner, to exhibit about the State, with that flipper or valve in the seed tube.

His nephew, Van Rensselaer Brown, swears that his impression is, that that model was similar to the machines that he now makes; that is, as he made them in 1857,

substantially in every respect; that he has now a picture of it in his memory as it then appeared to him; that the forward part of it was composed of two runners, (p. 196,) two pieces across from one lever to the other, one piece for the lever to work through, and one piece below for the lower end of the lever to work in, and one piece across the forward end of the runner and the tongue. The hind part was composed of two wheels; two pieces of timber, one on each side of the wheels—that would be four pieces, one on each side of each wheel; two cross pieces and three uprights for the seat to set on, and the seat on top of them. That the impression of that model as he then described it was pretty vivid in his memory; and that he was not drawing upon his imagination, instead of his memory, in filling up that picture. This is the substance of his testimony with respect to that model, and shows clearly that he never saw it, and that he was then describing a machine constructed like the model of Brown's patent of 1855.

He admits that this brother-in-law of Brown's, Hibbard, talked with him about testifying in this case, and talked with him about this model, and the half-size machine, calling his attention to the same; and that Hibbard and he talked about his being a witness in the case, to prove these facts which he has sworn to.

His man, Edward Turley Cheese, *who lived in his house at this time*, and worked on the farm, although a willing and swift witness, as his testimony shows, and having a memory as yielding as this hinge joint which he describes, cannot remember of having seen the model; he knows nothing about it whatever. And that is a remarkable fact, as Brown swears this model was in his house during all the time from January or February, 1851, until he sent it, in the fall or winter, to his brother Solomon; and yet Cheese, who ought to have had opportunity to see it every day, never saw it; nor did anybody else see it except this nephew, Van Rensselaer Brown, who was casually there on a visit, staying there one night with his wife, and going away the next morning.

But even though the existence of this model were clearly established, it is no answer to the prior machines of Moffit, Todd, Abbott, Remy & Kelly, Job Brown, and Kirkman; he must prove the making of an *operative* machine. (See *Elliothorpe* v. *Robinson*, 2 Fisher, 83. *The Union Sugar Refinery* v. *Mathieson*, 2 Fisher, 600. *Cahoon* v. *Ring*, 1 Fisher, 408.)

WHEN DID GEO. W. BROWN CONSTRUCT HIS HALF-SIZE MACHINE FOR PLANTING CORN? AND OF WHAT PARTS DID IT CONSIST?

In examining the testimony upon this point, it must be done in the light of the fact that the defendants had made proof before the 12th of June, 1866, (when Brown addressed himself to the task of ante-dating them.) That John Kirkman had made a machine having two runners followed by two rollers in a rigid frame work, and that the runners could be raised from the ground by the weight of the driver applied at the rear part of the frame, by means of a joint at the rear of the tongue. That this machine was used in the spring of 1850 to plant about one-half an acre, and that the next season, being dissatisfied with the *seeding device*, Kirkman had altered *that part* of his machine from the L lever to the pitch chain.

That Job Brown had, also, in the spring of 1851, made a machine having three runners, upon which the dropper rode, working the lever by hand, and that it planted in *check rows*. G. W. Brown thereupon addressed himself to the work of answering Kirkman and Job Brown with this half-size machine, which he completed and used after harvest of 1851, and which at that time contained no rollers or wheels, and the job which he laid out to work up was, that this half-size machine was not only made in the spring of 1851, but that it was then complete, containing substantially all the parts of his machine patented in August, 1853, including the rollers, runners and seeding device.

The first witness whom he swears upon this point is *Edward T. Cheese.* This man was formerly his hired hand, worked for him on his farm in 1850, having quit his employment in March, 1851, (p. 124, C. Int. 73), but working on the farm still during the season of that year, cropping for himself and *boarding with Brown.* This man will be found a pliant tool of Brown, but even his easy conscience could not be worked up to the sticking point, for in the cross-examination he swore that Brown was working at this machine a good deal of the time of the summer of 1851, and, if he remembered right, he *completed* it early in the fall, just about harvest time, and that he first saw it in operation just after the harvest, when the neighbors, Adcock and others, were present. (p. 122.) That his best recollection is, that the *rollers* were *not* then attached to it. (Int. 40, 41.) That later in the fall, he thinks it was, Brown done some alterations in the planter, and thinks he fixed rollers to carry with him—he traveled a good deal. He feels certain about the rollers being attached, but whether or not that fall, he is not certain. *Thinks* he saw the machine altogether in the yard that fall. (p. 123.) Brown was traveling, selling cultivator rights, somewhere in 1850 or '51. (p. 128, Int. 135.) This is the substance of his testimony. It is very evident that he had been worked up to the point of dating that half-size machine to the spring of 1851, but having made statements directly to the contrary in the presence of Calvin W. Brown and others, (pp. 122–3), a few weeks previous, he was in a situation to be impeached, and therefore told the truth when he said that it was completed about harvest time, and then had no rollers or wheels.

Brown now having signally failed with his man Cheese to date this half-size machine back to the spring of 1851, or to prove that it had rollers even at the trial in the presence of the farmers in the fall, next essays to prove by these farmers that it *had rollers on at this trial*, and his next witness on this branch of the case is

Geo. W. Adcock, who testifies that he was one of the persons present *after harvest*, witnessing the experiment with that half-size machine in Brown's field ; that it was, perhaps, August or September, 1851, (p. 142, Int. 4); that he first saw the machine *or part of the machine;* that Brown brought it to his field, or his father's, to show how it operated, and then he met at Brown's, along with the other farmers, a short time after. He is asked to give a general description of the machine on direct examination, and he answers that "it was a machine with a stiff tongue, and runners." He then goes on and describes the *seeding apparatus*, slides and lever. He is then asked to describe the rear part of the machine. (p. 143, Int. 21.) He has not, up to this time, mentioned the machine as having a rear part. The question is objected to on that ground, and he says that he *don't remember* that there was *any rear part*—don't remember that the wheels were attached to the machine that they tried at that time; but he is confident that Brown explained that he intended to have wheels follow behind. On cross-examination, he says the runners were about eighteen inches long and two and one-half feet apart,—that his impression is that the machine *did not have rollers* or wheels following the runners, (p. 145, Int. 8), and the first that he heard that Brown had that planter, was when he brought it down to his field as before stated. (p. 146, Int. 22.) We see here is a total failure on *the rollers* with his second witness.

His next witness is *James M. Brown*, who testifies that he was one of the persons present at that trial of this half-size machine. He says he don't recollect exactly, but he thinks it was in 1851, that Adcock and others were present. When asked to describe it, he says he could not tell how it was shaped ; it was something similar to what it is now, only on a smaller scale, just showing what it could do, or the principle of the machine. (p. 152, Int. 9.) He is asked if it had any runners, which was objected to as leading, and he says *he thinks* it did, and he thinks it had two. *He is not asked on the direct ex-*

amination whether it had rollers or wheels. On cross-examination, when asked to give a description of the planter, he answers, "What will you do if I can't?" When asked if he would state, at this distance of time, that the planter had wheels to it, he says *he rather thinks it did;* and when asked what made him think so, he says, "Well, I don't know what makes me think so, but it rather strikes me I always thought it had," and when asked whether he ever saw one of these planters without wheels, he says, "No, sir." (p. 153, Ints. 17 to 19.)

Up to this point, Mr. Brown has made no proof of having this half-size machine until the *fall* of 1851, and then *without rollers*,—in fact, it was a perfect model of Job Brown's three runner planter, omitting one runner, having the identical seeding devices, straight slides and lever, to work the slides by the man riding on the machine, and without rollers for covering, for Brown swears that this model had not round plates for seeding device, as he afterwards used. (p. 214, Int. 93.) He in fact, no doubt had seen Job Brown's machine in use among the farmers, and patterned this machine after it. He admits that he was selling cultivator rights, and was in the county of Peoria on that business along in those years, and would naturally turn his attention to corn planters.

At this stage of the proof, he has utterly failed to get this half-size machine into existence by his man Cheese, or his neighbors, earlier than the fall of 1851. Hibbard, his brother-in-law, whom he had examined, was ominously silent on the point; he asked him not a single question on the subject, although he worked for Brown during the time in making grain cradles, and of all men he should have been the very witness to prove these facts by, and in his extremity he resorts to a most shameless and transparent fraud, the weakness of which stands confessed, and needs no comments to expose. He leaves his family, workmen, relations, and near neighbors, and travels off into Henry county, and lays the scene of the *first* exhibition of this planter at some roadside tavern

where he stopped all night in *May* or *June*, 1851, and this was to an ignorant *Swede*, a mere boy 15 or 18 years old, who had been in the country about a year and a half. This creature he picked up in *Galesburg*, who was a painter by trade, and Brown taught him his lesson; he was to swear *rollers* on this half-size machine, and to fix the date as the spring of 1851. His testimony commences on page 177. It is that of one John A. Johnson, who says (swearing June 12th, 1866) that he was then about 30 years of age, and that he then resided in Galesburg, and that he was out in Henry county collecting money for a Mr. Fuller, and stopping one night at a tavern, as near as he can recollect, in the spring of 1851; Brown was there with a one or two horse wagon, and that he had in his buggy what he called a corn planting machine. He says he can't recollect how the machine appeared to him, but he does recollect it had *two drums*. He could not recollect whether it had runners, seat for dropper or driver, seeding devices or tongue; nor could he recollect *any other part*. He admits that Brown talked with him just previous to deposing at Galesburg, and that Brown told him he then had a half-size machine with him, and thought it was in 1851, either May or June. (p. 182, Int. 83.) He says Brown drove in the yard, and he recollects that he had *something there*, but he could not tell what it was, to a positive certainty; and when asked if it might not have been a *cultivator* instead of a *corn* planter, he says, "WELL, I can't recollect as to that." (p. 180, Int. 37.) This man's testimony is so manifestly manufactured, that it will not bear the least scrutiny. It is bald and shameless perjury. But this witness does not describe a corn planting machine.

Brown now, in utter despair, essays to change his tactics, and if he can't carry that half-size machine back to the spring of 1851, he at least will prove that he made a small black walnut model in January or February, 1851; and for this purpose mainly, he introduces next his nephew, VanRensselaer Brown, who is then working in his

shop at Galesburg, making corn planters. His testimony touching this model we examine elsewhere; but while on the stand, he swears that early in July, 1851, and about the 4th, G. W. Brown came to Davenport, Iowa, with a half-size machine packed up in his wagon, (p. 193, Int. 15); it was not put together; but, unfortunately for this witness, he had not been drilled intelligently, and made this machine correspond with those made after the model of the 1855 patent, having the features, mainly, of that machine, *driver's* seat, etc., (p. 196, Int. 61); but it is confessed that the driver's seat was not made until 1853. This witness and Johnson belong to the same category. Their testimony, we are constrained to say, bears internal evidence of having been made out of whole cloth. It is only necessary to read it, to become entirely satisfied that this criticism is not unjust.

Mr. Brown himself next takes the stand, and swears he made that half-size machine "sometime during the spring of 1851." Thinks he planted corn with it in May. Does not think he could have been planting later than sometime in May. Knows he planted corn with it—from three to four acres in his orchard. (p. 212.) The neighbors saw it operate in September, 1851. (p. 214.) He says this machine had rollers or wheels, and that this corn so planted in the spring grew and ripened well, but he cannot remember of showing it to these farmers when they came up to the house to write the recommend, although it was but a rod off. (p. 231.) Brown stands *alone* upon this proof, entirely unsupported by his brother-in-law, Hibbard, who was then working upon grain cradles, and who, of all others, ought to have known; by Cheese, his workman, who positively contradicts him, and swears that the machine was not completed until about harvest; by the neighbors, none of whom saw the corn or the machine until the fall, and never heard of the corn planted with it, so far as we know; and none of his family are sworn to corroborate him. It is incredible that this machine could have

planted that corn, and Brown fail to show it to his neighbors, and Hibbard and Cheese ignorant of it. But there is a witness sworn in behalf of defendants, who was a near neighbor of Brown, and whose farm adjoined, who saw this half-size machine about July, 1851. This witness is Calvin W. Churchill, and his testimony on this point will be found on pages 576–7 of the direct examination, and 585 of the cross-examination. He says that he, along with Brown's brother-in-law, Cisco, met Brown on the road between Shanghai and Keithsburg, about half way—Churchill and Cisco were coming from Keithsburg—he thinks it was in July, 1851; Brown had this half-size machine in his buggy; he says it was, he should judge, two and a half feet wide, with runners probably two-thirds of the size he makes now—not larger—it had the runners and the seed boxes, *and it had nothing else that he now recollects about.* They stopped in the road and examined this model, as he termed it. Says the runners were made of wood, and that it was painted *red;* he thinks Brown showed the principle and the way he calculated it to work. He says he thinks the *rollers or wheels were not attached.* He says he next saw that model after Brown moved to Shanghai, along in the fore part of April, (1852,) and that he saw *no* alteration in it, to his knowledge. That he next saw it, he thinks, in June, same year, at the same place; that he could see no alteration then in its condition from when he first saw it. That he has some particular things in his head to know the reason why he saw it in June; he had some business down there about a cradle; he might have seen it two or three times afterwards, but could not state. This witness helped Brown move to Shanghai about the first of April, 1852, (pp. 575, 577), then it was that he saw this machine again, (p. 577, Int. 28); his memory will be found remarkably accurate; he had opportunities to see and did see this machine, and never saw it with rollers or wheels. Like all the other farmers sworn on both sides, he meant to tell only the truth, and from his testimony it is

evident that Brown, in July, 1851, had this machine on the road going to Keithsburg, where he got the slides *cast* and the seeding device put in, for Churchill saw nothing of this part of the machine when they met on the road, and he was an *acute* observer. One cannot rise from a perusal of this man's testimony without being impressed with the fact that he was a careful observer, and that he has a tenacious memory, which is characteristic of men, like him, who cannot read or write, and therefore rely the more upon memory. The Court, in reading the remainder of this man's testimony upon other matters, will observe his remarkable accuracy in details, and his strict and scrupulous honesty. This will also dispose of Van Rensselaer Brown's testimony about G. W. Brown coming to Davenport with his machine about the third of July, with *rollers*, seeding device, etc., complete. Brown, undoubtedly, got his dropping apparatus made at that time at Keithsburg, (July,) and this confirms Cheese that Brown was working at the machine in the summer, and got it completed in the fall of 1851, and it proves clearly that the machine had no rollers previous to June, 1852, if it ever had.

But even though Mr. Brown could establish beyond any controversy that he made this model or half-size machine with runners and rollers in 1851, yet the proof shows that it was made as a check-row planter, and that the runners were but two and a half feet apart, therefore if it did actually plant corn as he pretends, that corn could not be cultivated both ways, for the horse could not walk between the rows. The very object in check-row planting is to enable the farmer to cultivate the young plants by plowing and throwing up the earth on all sides. The point we here make is, that for all practical purposes this half-size machine was but *a model*, and was not capable of being used for *agricultural purposes*.

And this view is expressly sustained by the case of *Cahoon* v. *Ring*, 1 Fisher, 397. Justice CLIFFORD on page 408, says, "If the latter (models) only were made,

and although such models might be capable *of operation* for the purpose of experiments, yet, unless it is proved to your satisfaction that a machine or machines *capable of being used* FOR ACTUAL AGRICULTURAL PURPOSES was or were made prior to Cahoon's invention, then, as a matter of law, I instruct you that such alleged inventions never were completed, and cannot affect the validity of Cahoon's patent." See also, 2 Fisher, 600, ib. 83.

Of course this doctrine applies as well against as on behalf of a patentee, and defeats this half-size machine or model, when it is set up against the prior inventions of Moffit, Abbott, Job Brown, and Kirkman.

G. W. BROWN'S RUNNER.

Mr. Brown essays also in his testimony to ante-date Job Brown, and Kirkman on his runner, and swears that he, in 1849, attached a *runner* to his cultivator for an experiment, (p. 208, Int. 6); says "he dropped a good deal of grain with it at different places," but also says, "I do not think I ever planted any with it in the ground." But the trouble with this runner was, that it was not substantially such as he makes now, or patented, or such as Abbott's, Job Brown's, and Kirkman's. (Int. 10.) "The seed was dropped down behind that helve *on the side of the runner—side* of the *heel* of the runner, I would say. I had not a regular *opening* at the heel as I make now." But he says, in the spring of 1850, he made a planter with a *plank*, in V shape, and put a narrow runner under that plank. This machine, he says, he abandoned as an unsuccessful experiment. (p. 208, Int. 13.)

We are not much concerned about these unsuccessful experiments of Mr. Brown, as we ante-date them with Moffit, Todd, Abbott, Job Brown and Kirkman. But he stands alone, wholly unsupported by a single witness, not even a member of his family. No man saw him even experimenting on corn planters until 1851, when he tried this half-size machine or model. It is remarkable that his brother-in-law, Hibbard, who was then working for

him on grain cradles and cultivators, should have seen or heard nothing of these experiments, and Edward Turley Cheese, and Van R. Brown, his nephew, neither, could stretch their memories back to these interesting events; not a single neighbor ever saw or heard of them. And we are forced to conclude that they belong to the category of experiments with the double dropping device in 1852, having no witnesses but Mr. Brown to sustain them. How different in this respect from the prior experiments of these other men, who are sustained in every instance by their neighbors, who are enabled to fix the dates of these respective inventions with reasonable certainty.

DATES OF APPELLANT'S INVENTIONS.

G. W. Brown's Machine of 1853, was actually made about the 20th May, 1852.

Mr. Brown's first patent was issued August 2, 1853, and under the law was, at his request, ante-dated six months to February 2, 1853. This machine was actually made in the spring of 1852, and not fully completed for use until the *last of May*, 1852, and after the 20th of that month. The complainant has not, himself, definitely fixed the date of the completion of this machine, but we have proof from his near neighbors which does establish the date with reasonable certainty.

Calvin W. Churchill

Swears (p. 578, Int. 55), that he got through planting his corn about the 20th of May. That he got through planting before Brown planted his. That Brown planted the last of May, and in answer to the question, how it happened that Brown planted so late, he says (Int. 52), "Well, he wanted to plant with that machine, he said, and he was put to it to get things ready to plant with

it, no blacksmith handy, and had a good deal of running to do before he could get it ready to plant with it."

He says (Int. 46), Brown's field came up to within twelve rods of his (Churchill's) house, but the space he was planting was forty rods distant, and he went out and saw Brown planting with it; he also was then renting a piece of Brown's land. William Palmer says, (p. 592, Int. 11), that Brown sent for him to see it work; he had business and did not go. He says it was "after we got through corn planting, I think."

It is conceded now that Mr. Brown made no other than this planter that spring. That it had small *log* wheels, heavy cast iron runners, no seat for the driver; in short, was identically the machine described in his first patent.

The date of this invention then contained in the patent of 1853, *was after the 20th of May*, 1852. He is, therefore, anticipated by Moffit, Henry Todd, Remy & Kelly, Abbott, Job Brown, John Kirkman, and Charles Finn.

George W. Brown's Machine of 1855 was made after the 20th of April, 1853.

To this fact Mr. Brown testifies himself, and so fixes the date. (See his testimony, p. 218.) This was the time when he made the change in his machine of the previous year by using larger rollers or wheels, a rear frame and *driver's seat.* But he did not adopt the valve in the seed tube or flipper until the fall of 1854, when it was first put into the handsome curled maple machine, which was made for exhibition; and the first machines sold containing it were sold in the spring of 1855. Such are the facts, as abundantly shown by the proof.

George W. Brown first put the Flipper or Lower Valve in his Planters in 1855.

He now swears (page 215), that while Hibbard was gone up the country, in June, 1852, he put a flipper into that half-size machine; yet Brown admits that he did

not put that valve into the ten machines which he made and sold in the spring of 1853; and that the first full-size machine in which he put the valve was made in the fall of 1853 (p. 240, C. Int. 274); one that he had fitted up to his own notion entirely, as he intended to make them in the spring of 1854. He says, "I can't recollect who had that machine, but it was one of those which I made in the spring of 1853, I think." (p. 240.)

He says, he thinks he did sell machines of his manufacture in the spring of 1854 that contained the valve, but he can't tell who he sold them to. He has no recollection of putting it into more than one or two—one, two, or three, and can't remember any neighbor who bought a planter in 1853, or 1854, with that valve in.

He admits that after he was sued by Case for the use of this second valve or flipper in this court, in September, 1860, that on the 26th of October, 1860, he caused a publication to be made in the Chicago *Tribune* newspaper with respect to the suit; and in that publication he professed to state what the facts were touching the double-drop principle as used in corn planting machines, and in that article he stated that he could prove that he *began* to use the same arrangement to form the double drop that he now uses—*in August*, 1853—and that the principle was public property. (p. 243.)

When asked what he meant in that publication by the statement that he could prove that he began to use the same arrangement that he then used to form the double drop, in August, 1853, he said it was as far back as he could recollect—that he could prove it at that time; that it was as far back as he could recollect of using it in the machine or could think of anybody that saw it work; and that he therein referred to this large machine that he put it in, in the summer or fall of 1853.

He admits that he made one machine for planting corn in the spring of 1852, and that machine Hibbard took up into Ogle county and left it with a man by the name of Bell. He says he made and sold about ten machines

—eight or ten machines, in the spring of 1853, and that none of them contained this valve. Hibbard swears, that when he came back, in June, from Ogle county, he saw this valve in the runners of a machine not put together, though he did not stop to examine it, or ask any questions about it.

He proved by Joshua Bruner, that in the fall of 1853, he and one Robert Mathews took a model of Brown's corn-planting machine about the State for exhibition. Joshua thinks that it had this second valve. He swears Robert Mathews, who swears that he does not think it did have that valve; his best recollection is that it did not. His pliant witness, Cheese, however, swears, that the first that he knew of that flipper was in a full size *curled maple machine*, made in 1854, which he thinks was completed in the winter of 1854, or the spring of 1855, but he does not remember. He, however, says that he believes that flipper was in the model that he saw in 1852 or 1853. But his witness, *James M. Brown*, swears, that he knows that Brown put a flipper in his father's planter before he commenced putting them in his regular planters; that Geo. W. Brown came down to his father's and told him that he thought he had an improvement on the planter so that it would work better; that the improvement was this flipper to drop the corn down near to the ground; that Brown said it was an improvement on dropping, by which the corn would not have to drop so far; and that Brown talked like it was something *new* and said he *had not put it in any other planter;* that that was going on near corn planting time; that his father had then used his planter one season, he knows, any how, and may be two; that his father bought a planter in the spring of 1853; that he feels confident that Brown told him that he hadn't put it in any other planter; and Brown did put it in his father's planter; (pp. 153–4.)

He does not produce any farmer who bought a planter containing that flipper in it, in the year 1853; and the overwhelming weight of the testimony is, that the curled

maple planter, which was made in the fall or winter of 1854, was the first planter that ever contained it. Nor, in fact, was it ever contained in any model except the model which he sent to the Patent Office, to procure his patent of May 8, 1855. His neighbors, Calvin W. Churchill, David Routh, Abraham Foster, William Palmer, Aaron Yarde, Charles Pine, and others, who are sworn on behalf of the defendants, testify that they never heard of that flipper until the year 1854. That it was then spoken of as *a new thing*, and an improvement on the planters.

It is conclusively proved that the oscillating plates contained in the planters which he made in 1853, and also 1854, and sold, did not contain the slot in which the flipper plays, but were smooth upon the surface, and therefore there could have been no flipper or second valve in those planters. One of the plates of the planters of 1853, that of Charles Pine, is produced by Pine, showing that there is no slot in it for the flipper to play in; it is an exhibit here.

Case's invention was made in February, 1853, and filed in the Patent Office on his application for the patent. Charles Finn's is as old as the summer of 1851.

Case and Finn anticipate Brown more than a year *in their seeding apparatus*. And no man is produced, or can be prodnced, who *bought* a machine, or saw one in *operation*, containing that flipper, until it was put into this machine, belonging to the father of James M. Brown, to wit, Alfred Brown; and that was done in the spring of 1855; not earlier than the spring of 1854, according to James M. Brown's testimony. But G. W. Brown's publication in the *Tribune*, of October, 1860, is perfectly conclusive against him. It is his own statement of *facts*, and he therein claims that this *principle* contained in his machine is old, or was contained in a planter as early as 1852, and was the property of the public. After that publication in October, 1860, to wit, in December, 1860, for the purposes of that suit of *Case* v. *Brown*, and to

use his reissue provided he could get one, to defend himself in the suit, he procures the reissued patent number 1095.

PRIOR INVENTIONS.

We now proceed to abstract and discuss the testimony relating to the several machines which we insist are prior in date to the alleged inventions of appellant, made May 20th, 1852, and patented Aug. 3rd, 1853, and made April 20th, 1853, and patented May 8th, 1855; and his double drop seeding device made in the fall of 1854, and combined in the model of the latter machine.

The English Machines.

About these we have no controversy. They are—

1. James Richards' machine, patented in 1800.
2. Richard Hornsby's machine, patented in 1839.

Certified copies produced.

Next are those described in

Johnson's Farmers' Encyclopædia,

published in London, in 1842. From pages 390 to 397 inclusive, we find described the following machines, drawings of some being attached, viz:

1. Cook's Drill.
2. Suffolk Drill.
3. Bedfordshire Drill.
4. Lord Western's Drill.

Joab Moffit's Machine, made in 1834.

To establish the fact that the machine of Joab Moffit was made about the year 1834, and publicly used at and near Richmond, Ohio, at that time, fourteen witnesses

are sworn, six of whom reside at and near Chillicothe, Ill., and eight at or near Richmond, Ohio. Twelve of these witnesses testify that they saw the machine, and describe it. Two others, Mrs. French and Mrs. Tomlinson, testify that they heard of it at the time.

The character of the witnesses for veracity is not assailed. No motive could be assigned for such a large number of persons without collusion willfully inventing such a tissue of falsehoods as are sworn to by these persons, if the alleged facts be mere inventions. Appellant's counsel, therefore, are driven to assume one of two positions:

1st. That the witnesses are confusing this pretended machine with one invented about 1835 by one Isaac Scott, at the same place; or

2d. By having seen corn planters in late years having two runners followed by two wheels, containing a hinged joint, have confused their memories of something seen in past years with these latter machines, and invested the ancient with the peculiar features of the modern.

But, on rising from a candid and impartial examination of the testimony of these fourteen witnesses, the mind will reject either of these hypotheses as untenable, or any other inconsistent with the fact that a machine for planting corn, having two runners followed by two wheels, which opened the furrow, dropped the corn and covered it, was made by Joab Moffit, and publicly used at and near Richmond, about 1834; and the testimony is equally clear and convincing that this Moffit machine planted corn in *check rows*, by means of a lever connected with slides, operated by the hand of the attendant; that the runners were in the shape of sled runners, and performed the same functions as in the complainant's and all the later machines; that a hinge joint connected the rear and front frames, giving flexibiiity or the independent action of the frames; that the corn was dropped at the heel of the runners, and covered by the rollers or wheels. There are some marked differences between the

machine described by the witnesses and that of Brown,—the long seat for driver, the second valve in the seed tube, the lever for dropping called the steering oar, the iron axle, iron braces, and these facts prove irresistibly that the witnesses are not reinforcing their failing memories of an ancient machine with present pictures of existing ones so radically different in many essential features.

But we will proceed to examine, first, the hypothesis that the witnesses are confounding this two-row Moffit planter with the one-row planter made in 1835, by Isaac Scott.

The witness, Uriah Beck, who assisted William Dawson in ironing this Moffit planter, describes it with great accuracy. He also described the Isaac Scott machine just as it was made, with equal accuracy, as is agreed on all hands, and he fixes its date truly. His wife, also Mrs. Farden, Mickle and James A. Scott, who saw this Moffit machine, also saw the Scott machine and correctly described it and the time of its invention. Scott's machine was a one-horse, one-row planter, and had marked peculiarities, as had that of Moffit. Therefore this hypothesis cannot for a moment be maintained.

The second hypothesis is equally untenable, for the reason that some of the witnesses who describe the Moffit machine have never seen any other to this day, and describe features of the Moffit machine which are not to be found in any other; for instance, the *hoop*, or bow on the rear. This is mentioned by Mrs. Farden, upon whose testimony it was placed on the black walnut model; also by Mrs. Beck, Hartley, Cash, Luzada, J. A. Scott, and Short. The long lever running from the seed droppers to the rear of the machine was seen by Dougherty, O'Connor, Cash, Epley, Hartley, Luzada, and Short. What other machine is shown with such a device for dropping?

The iron rods, in shape of a V, running from each side of the rear, and connecting in front, are mentioned by Mrs. Farden, Beck, and Dougherty. The iron axle, square,

turning with the wheels, is also mentioned by several. This hoop or bow, these rods, this form of lever, this axle, are novel, and not found in other machines.

The witnesses agree with great unanimity as to the place where the first experiment was made with it, to wit, in John H. Davis's field, back of Thomas Scott's shop. They agree that it was brought to that shop after the experiment, and there repeatedly seen by some, and there only seen by others. It is also proved to have been used back of John Griffis' tan-yard, and Beck swears that he saw it used over in the bottom by Johnson, as he passed along the road. Thomas Luzada also swears that he saw them using it in the bottom, one hundred yards off, but had a wild team and could not leave to go and see it work. Many of the witnesses, from hearsay, learned that it was taken to the bottom for further trial and was there used. Benjamin Short says he was living with Joab Moffit's uncle, John, and saw them in the morning, when they started to the bottom with the planter, to try it there ; saw them in the evening, when they returned, and heard them say it operated pretty good, and that they seemed to be pleased with it.

The uniform testimony is, that it worked well, planted regularly in check rows except where there were roots and stumps. Dougherty, Beck, Epley, and James A. Scott, swear that they saw it in operation in the Davis field, adjoining the town. Beck and Short swear that it was also used in Griffis' field, near this, and that they saw the corn after it came up ; that it looked well, and was planted regularly in check rows. Dougherty, Beck, and Scott, say that the experiments they witnessed in the field near town proved successful ; they saw the corn after it came up, and it looked well. Mrs. Farden heard Burke tell Moffit that he had seen it operate, and that it worked well. Epley, who saw it operating in the Davis field as he passed along, swears he saw that corn afterwards, and that " it looked about as well as if dropped by hand." Beck says that the corn was cultivated both

ways, and it looked regular. Hartley, Mickle, Luzada, and Short, did not see it actually operate but heard those who did, say it worked well except where there were stumps and roots.

The testimony to the successful use of this planter is as satisfactory as to its existence, more satisfactory than to the successful use of George W. Brown's machine of 1852, for he stands alone in support of the fact, and he admits that it was used on but two occasions, once in his own field and once in Alfred Brown's, and never after, and he never made or used any other like it. It is as satisfactory as to the use of Finn's machine, the Remy & Kelly machine, and the Farley machine. All of which had a very limited, but, nevertheless, a very successful use.

There can be no reasonable doubt that the experiments with this machine showed that a *two-row* planter could not then be brought into general use, and Isaac Scott was then stimulated to construct a *one-row* planter which would operate in stumpy fields. Case's first one-row planter was constructed on that idea.

We further say as to the construction of this machine, that Uriah Beck swears, he and Dawson ironed it; Mrs. Beck testifies to the same fact, and Benj. Short swears positively, that he saw Dawson and Beck at work upon it at their shop. (p. 898, Int. 49; p. 900, Int. 97.) Beck, Mickle and Hartley also testify that a machine was first made without the joint and found to be impracticable, and that Moffit then constructed this jointed machine.

Mrs. French and Mrs. Tomlinson swear to the conversation between their father and the young man, Parsons, who worked for the Moffits, about this machine. Mrs. French says, (Int. 26, p. 911), "I could show you if I was in the field the very spot we stood and rested;" (where they talked about this planter.) We submit that this testimony is not only competent but most convincing.

Mrs. Farden also says, that while her husband was

absent in the army, she took charge of their farm and assisted her son in harrowing, and that the bow on the harrow reminded her of the Moffit machine, and she said so to her son. (p. 795, Int. 63.) Dougherty was also reminded of it when he was using his machine, years ago.

If these witnesses are credible, and they undoubtedly are, then the existence of this machine and its successful use are placed beyond cavil or question. Even conceding that complainant's witnesses are equally credible, as we do of most of them, and giving complainant the full strength of the position he contends for, that many of his witnesses had equal opportunity with defendants and remember nothing of this machine—and we concede this especially as to the witness, Bell, who was then (in 1834) but five years of age!! while his witnesses, Cutwright and Josiah Moffit, heard of the machine—yet we respectfully urge that negative testimony of this class and under these circumstances cannot outweigh the positive testimony of those who speak from personal knowledge of facts which are within their recollection, and came under their personal observation, and about which they could not testify as they have done without bold and naked perjury.

Again, in order to show that Beck is mistaken about the sale of the planter to William Johnson, they produce *a* Wm. Johnston who was sixteen years old in 1834!! This may be classed in the same category with the testimony of the witness, Bell, aged five years in May, 1834.

Complainant seems to think that because Joab Moffit himself swears (p. 456, C. Int. 7) that "if he did invent this machine, he has forgotten it, which is not likely," therefore all the witnesses who swear he did, and that they saw him making it, are grossly mistaken.

It is possible, of course, that he does not remember of this invention. He does not remember of seeing Isaac Scott's machine, (C. Int. 2,) but Scott did make it, nevertheless; and it is a strong circumstance showing the defective character of his memory. He does not remember

Wm. Dawson, the blacksmith who did the iron work on this planter, and this is a most remarkable fact, for almost all the witnesses, on both sides, remember him. He does not remember Wm. Johnson, except an apprentice of his of that name. He says if he ever invented a labor-saving machine of any kind he has forgotten it, which is not likely, (C. Int. 7); yet the witnesses of appellant say that he was an inventive genius, and did invent divers things of that kind. (Van Meter, p. 401.)

We do not desire harshly to criticise this man in connection with his refusal to furnish the letter written him by J. W. Van Meter, the agent of complainant at Richmond, on the subject of this corn planter. (C. Int. 34, p. 460.) We simply again call the attention of your Honors to what Van Meter told Mc Gaffy about Moffit's opportunity to make money out of one side or the other, and to the portrait of Moffit's character as drawn by appellant's own witness, Squire D. Stratton, the Recorder of Ross Co., Ohio, (Int: 9, p. 402), and there leave him.

Now, as to the parts and practical operation of this machine, eleven of the fourteen witnesses of appellees describe it as a machine having two runners, shaped like sled runners, followed in the rear by wheels. The proof is abundant that these parts were connected by a hinge joint. Beck swears that there was a driver's seat on it, and that Johnson was riding on it when he saw it. But if there were not seats on it, the machine was so constructed that they could have been placed upon it without the exercise of the inventive faculty. (*Kirby* v. *Beardsly*, 3 Fisher, 265.) As to the *lever* for raising the runners, the hoop or bow in the rear would perform that office. Mrs. Farden saw the men *teetering* the machine with the bow, and when they pressed down upon it the machine flew up in *the middle*. If the tongue had been resting in the neck yoke the runners would have been raised up. But the machine shows for itself what functions it would perform. It was not necessary to make proof of anything more than the form of construction.

If a person had happened in Davis' field and suggested that the driver should raise the runners by pressing down upon the *bow* or rear frame, he would not have been entitled to a patent for his discovery, any more than the man who should, as Justice Story says, apply a coffee mill to the purpose of grinding oats.

R. S. Thomas' Cotton Planter.

The evidence touching this machine is wholly in the Patent Office. Patent applied for July 3d, 1841, rejected.

It consisted of two frames, the forward part supported on wheels; a *hinged frame* hung in the rear covered the seed. The frame was in two parts; the seeding device was connected with the front; the two parts performing their respective functions as in appellant's.

The specification says:

"Fig. 3 is a view of the under side of the machine; *f* is a keel or rigid piece, which extends along from the fore end to the opening for the planting roller, and thus serves to open a furrow much more perfectly than can be done by a tooth or coulter, and tends also to keep the machine in a direct course.

* * * * * * * * * *

"*Claim.*—I claim the manner of forming the bed piece in two parts—the rear part, *a*, being HINGED to the forward portion in the manner described, and for the purpose of covering the seed that has been planted; and this I claim in combination with the ridge or keel piece, for forming and preparing the furrow; said keel piece extending along the bottom of the bed piece."

Henry Todd's Machine. Patented Dec. 15, 1843.

This machine was invented by Henry Todd, at Oxford, New Hampshire, and the patent and model thereof are in evidence in this case. The practical operation of this machine is proved by the witness Samuel W. Hale.

(p. 769.) He says that he helped Todd make six of these machines; that he can't state how many were made by him, but quite a number, and that they were manufactured at Oxford, N. H.; that the machines were used by Todd, and were used to some extent in the vicinity of Oxford, in the year 1844, and thereafter, and gave general satisfaction; that he does not know of any difference between the full-size machine that was made, and the model.

REMY & KELLY MACHINE, MADE AND USED IN 1849—CHECK-ROW PLANTER.

This machine was invented by Remy & Kelly, and publicly and successfully used as a check-row corn planter by Benjamin W. Remy and one Edward Burgess, in Brookville township, Franklin county, Indiana, in corn-planting time of the year 1849.

The deposition of Benjamin W. Remy, on page 752, describes, in general terms, this planter; and the original deposition on file contains a diagram made by him, representing a side view of the machine.

On the 3rd of April, 1850, Remy & Kelly made affidavit to their specification, and on the 4th of June, 1850, filed an application in the Patent Office for a patent to be issued thereon, with a model of the same; a copy of that model is made an exhibit to the deposition of William C. Dodge in this cause, which he testifies is a true copy of the model now on file in the Patent Office.

The complainant having attempted, by his expert, Mr. Bond, to prove that the construction of this machine was such that the seeding teeth were not raised out of the ground by means of a lever, but that the harrow teeth only were raised, to set that point at rest, the deposition of Mr. Remy was again taken by the complainant, and it will be found on page 753. Remy testifies that the full-size operative machine, which he constructed in 1849, differed from the model in the Patent Office only in this. that the lever was a straight, instead of a crooked lever,

and that no pulleys or band were used for the dropping apparatus, but the dropping apparatus was operated by the hand of the person walking alongside of the machine. Remy says that he planted, in the spring of 1849, five acres of corn with that machine near Brookville, Indiana, and that he operated the dropping apparatus, and Edward Burgess drove; that the machine planted well, planting two rows at a time,—the five acres being planted in three or four hours, and that the corn so planted came up nicely, (p. 754); that it came up better than any other corn planted on the farm that year; it was even, and was cultivated both ways conveniently. He describes the dropping device as a small roller in the seed box, with holes in it to receive the corn. Through the roller there passed a rod with a crank on the end of it; to that crank was attached a pitman which passed up to the crooked rod above the seed box, which was operated by an oscillating motion, done by the dropper. He says that the *seeding teeth* and harrow teeth both were raised out of the ground by the lever,—that the machine was designed for, and operated as a *check-row* planter; that the driver rode on the machine; that he made but one machine, for the reason that there was no demand for them; that the country there was hilly and broken, and the corn fields usually small, ranging from five to fifteen acres; that he didn't make any more because it wouldn't pay. (p. 755.)

He attached to his deposition a certified copy of his specification. (p. 756.) The specification shows that the heads or wheels of the rollers were so attached to a shaft as to be easily removed when the roller was not wanted to break up the lumps of earth, and then the end heads or wheels served as rollers for the seeding apparatus. While it is true that his claim was the combining the harrow with the frame work so that it could be raised or lowered, yet it was none the less true that the seeding teeth were elevated at the same time with the harrow.

Edward Burgess, on page 759, also testifies, and cor-

roborates Remy's testimony. He describes the planter substantially as Remy does. He says the planter did a good job; the work was done well; the corn came up nicely, and was cultivated both ways without breaking down the corn more than is usually done. He says, "With that machine we furrowed the ground, dropped the corn, covered it, harrowed the ground, and lastly rolled the ground. It did it well and nicely;" that the corn was dropped by hand; that *the lever raised the seeding teeth* as well as the harrow teeth, and that this was done by the driver, when necessary; that it was a good, practical, working machine; that it was *a check-row planter;* that he tended a field of corn so planted by the machine, and that the corn did well, and was cultivated both ways very conveniently. (p. 760.)

It therefore appears that this machine was a check-row planter, and was not abandoned as unsuccessful, it being eminently successful and practical.

JAMES ABBOTT'S MACHINES, MADE 1846, 1848, 1852.

James Abbott resides in Brimfield, Peoria county, Illinois, which is not far from where Brown resides. It is a noticeable fact, that the prior inventions which we say anticipate Brown, many of them are to be found very near to the residence of Brown. Kirkman, Job Brown and Abbott all resided, and made or used their machines not far from him. They made the discoveries—did not patent them; and now, George W. Brown having absorbed their labors, seeks to claim the exclusive benefit of them. This he will fail to do, if we rightly read the evidence in this case. In fact these Englishmen brought to this country with them their knowledge of machines for seed planting, and it was natural they should have addressed themselves to the matter of constructing machines for planting corn, rather than the tedious mode of planting by hand. It appears Jas. Abbot, Job Brown, John Kirkman, (and as the latter (p. 481, Int. 40) says, Jas. Clark and Henry Heaton), had machines for planting

corn. Now, George W. Brown saw these machines, in all human probability, when he was selling cultivator rights in Peoria and Tazewell counties. He says (pp. 224–5), that he got his cultivator patent in August, 1849; that about the first of September, 1849, he sold to one Craig, living at Kickapoo town, this right for Peoria county, and he (Craig) lived on the main traveled road from Galesburg to Peoria. Mr. Brown was traveling through the *very town* where this man, Kirkman, worked his planter. We track him to the very spot, and no doubt he was back and forth on the main road from Galesburg to Peoria frequently in 1849–50–51, etc., and heard about these machines, and probably saw them in actual operation. Abbott has resided in Brimfield since 1843. His first corn planter was made in 1846. It had two wheels and coulters, and the wheels followed the coulters in line, acting as coverers (p. 462.) So that the wheels following to cover, is nothing new. In the winter and spring of 1848, he made another machine. By experiments on his first, he found the coulters clogged. This defect he obviated by the substitution of sled runners with wings behind. (p. 462.) This he claims as his invention. This runner was made of "a two-inch plank chamfered off to a thin edge to the bottom, and plated on the bottom with sheet iron, so as to form a cutting edge, so as to cut through the sods. The iron opening at the rear in the form of the letter V, and with the seed boxes over, and the seed dropping into the rear end of the runner. They were about fourteen inches high, their length about two feet seven, and inclined upwards towards the front, or being runner shaped, and furnished a support for the frame, on which they rode in planting corn. One of the runners is made an exhibit, marked No. 2, 1848; this machine was used successfully from 1848 to 1851, inclusive. In 1852, (not later than 1853), he made another. This had two wheels, and two runners with a hinge joint back of the seeding device.

As we have said, on the machine made in 1848 they

rode, (p. 462, Int. 2), and they stepped forward to press it into the ground, and backwards to raise the runners out of the ground. By stepping back the tongue was raised over the horses' heads. (p. 466, C. Int. 32.)

It is alleged that Brown's runner alone cut the ground like a knife. This is not true. Abbott's did so. (p. 466, Int. 36.) Abbott says the runners were shod with iron, they were filed sharp at the bottom ; they went into the ground from two to six inches. Job Brown's were certainly as sharp as Geo. W. Brown's, and so were Kirkman's. But all of them, more or less, cut through the ground as well as passed over obstacles. Brown does not claim a patent on the sharpness of his runner, nor could it be patented even if he had so claimed it.

These runners were bolted to the frame, and as there was no other support at one end, they must, as they did, furnish the support for the frame. This machine was automatic, working with an L lever, and had but one wheel. The points we draw from it, are—

1st. It had runners possessing every quality of Brown's.

2nd. The driver rode upon it, and by changing his position could raise or sink the runners.

3rd. It was prior in date to Brown's.

4th. It had a seat for the driver to ride on. (p. 498, Int. 9.)

This machine was seen by Henry Story, who, like Abbott, was an Englishman, and his son married Abbott's daughter. He came to this country in 1845. He was a machinist. (p. 498, 3rd Int.) Very soon after he came to this country, "it may be three years and not more than four," he saw a corn planter invented by Abbott. It had two runners in the shape of sled runners faced with iron or steel, and was made of wood ; the iron was open behind and a tube run down through the opening. (p. 498, Int. 2.) He saw corn said to have been planted with the machine. He talked of going into the business with Abbott of manufacturing them. (p. 498,

Int. 6–7.) He first saw the machine in 1848 to 1850. You add to 1845—the date the witness came to the country—three years, and you have 1848, the date Abbott fixes it. He says it was not more than four years. Even if you add four years, and you only have 1849. He does not pretend to fix the date of making it, only the time he saw it. That may have been the next year after it was made; but even if you take 1850 you are ahead of Brown. But he adds (p. 499, C. Int. 7), "he relies upon memory for date, and it might be earlier than the date fixed."

He says, "*it had a seat to it for the driver to ride on.*" (p. 498, C. Int. 9.) So it seems here we have Brown anticipated in his seat. John Kirkman, Senior, also saw the Abbott machine. (p. 482, C. Ints. 52 and 53.) He first saw it in 1849 or 1850. (p. 488, Int. 6.) Knew of his planting corn with it in 1851. Was at Abbott's house in July, 1851; saw the corn growing that was planted with this machine. He there saw the machine, and it looked as if it had been worn. (p. 489, Int. 8.) He describes the shape of the runners as being like "sled runners." (Int. 9.) John Kirkman, Jr., also saw the same machine in 1847 or 1848. He says on the bottom the runners were shaped like George W. Brown's; it had one wheel and two runners, and *the runners supported the frame.* (p. 492, Int. 39.) He says his father then lived in the old house on the hill; the same house his father lived in when he built his machine. Willard Johnson also saw this machine and the corn planted with it.

Now, the appellant has introduced in regard to this machine the following witnesses:

Edward P. O'Donnell. He saw in 1856, in corn planting time, a corn planter at Abbott's; it had runners and wheels. He can't give any further description. It looked like a new machine. He did not see it made. Certainly very little weight is to be attached to this deposition. The Court will notice that he speaks of the planter he saw as having runners and wheels—not a wheel.

Eli Bailey also testifies for complainant in regard to the Abbott machine. Heard of Abbott having a corn planter, and saw it in July, 1849, in an unfinished state. He says it was a two-roller machine, and standards before the wheels, and identifies a model shown him as being like it. He claims he can tell the date from an entry in his memorandum book of the time when he cut some wheat. But he made no entry of the corn planter in his book. He says the description of the machine is a mere matter of memory. He only saw the machine three times, and will, he says, swear positively to the description. The most singular thing about his testimony is, that he says that the first machine he ever saw with runners was Job Brown's three-runner machine—which he saw in the spring of 1850, and then only once. (p. 79, C. Int. 8.) When asked to fix the date of seeing Job Brown's three-runner planter, he says, "To the best of my recollection, it was in 1849." (C. Int. 9.) He says a boy rode on the machine, and worked the lever. On the 80th page, 20th C. Int., he gives a full description of the working of Job Brown's machine.

Now, we submit that this witness establishes that Job Brown was ahead of G. W. Brown in making a runner, and that he does not establish that Abbott did not make a runner, as he said he did in 1848. Further, the whole cross-examination shows, that while the witness is ready to swear, but little reliance is to be placed on his testimony.

Thomas Getty is another witness. He is seventy-three years old. While age is honorable, it does not aid in fixing dates of recent transactions with exactness. He says he moved from Brimfield, where Abbott resided, in 1855. (p. 112, Int. 4.) He describes it as a one-wheel machine. If his memory serves him right, it was the year before he moved from there. He thinks it was new. That his memory does not serve him right, is evident; for, on cross-examination, he thinks it was "the wet season,"—the season that comes every seven years. (p. 114, C. Ints.

16 and 17.) So, as the whole testimony concurs that the wet season really occurred in 1851, he must have seen this machine four years before he moved, instead of one, if he really moved in 1855. He only remembers the one peculiarity to the machine, that it had a large wheel. Otherwise he cannot describe it.

We believe this is all the testimony except that of Charles R. Getty, whose testimony is like his father, Thomas', bearing on the Abbott machine; and the weight of the testimony clearly establishes that, as early as 1848, Abbott made a corn planter having runners substantially like appellant's.

Jacob Mumma's Machine.

Grain Drill. Patented Nov. 20th, 1849. Previously described. (No model.)

Job Brown's Machines—1849, 1850, 1851.

This man was a farmer, living at Lawn Ridge, Peoria Co., Ill. He seems to have had an inventive genius, and between the spring of 1849 and 1851, made and successfully used several forms of machines for planting corn automatically and by the hand of the operator riding on the machine. Some of them were especially adapted for planting sod or new ground in drills, and others old ground in check rows or drills. Like most other inventors, he at first endeavored to plant in check rows automatically, but failed as they had done, and finally made check-row planters with runners, and with and without wheels as coverers, placing the dropman upon them to operate the seeding device so as to drop in the check rows. His son, Daniel Brown, says, (p. 555, C. Int. 28,) that Job Brown made no new experiments after *March*, 1851, and in this he is supported by the general drift of the testimony.

The first machine was made in 1849. It was a sod corn planter containing one *iron* runner without rollers.

This machine is described by Daniel Brown, p. 550, Int. 10; Job Brown, p. 527, Int. 39, et seq.; Nathaniel Smith, p. 762, Int. 3. Smith says it was made in May. He is a blacksmith, and produces his books showing charges against Brown on the 15th and 16th of May, 1849, for work and repairs on planter cutter, and on 25th charge for sharpening cutter. (p. 762.) There is and can be no controversy as to the date of this machine. The driver rode on it. (Dan'l B., p. 550; Smith, p. 763, Int. 3.) It was a successful machine; was *worn out* with use; planted 45 acres in 1849, and in 1849 and 1850 was hired out to neighbors among whom were Andrew Dawson and Arthur Reiker. (Dan'l B., p. 555, Ints. 29–31.) This runner contains all the qualities of appellant's. It was used in the same form on later machines made by Job Brown, and always gave satisfaction.

The second machine was made in February, 1850. It had two runners followed by two wheels as coverers and a large wheel in the middle which operated the dropping apparatus. (Dan'l B., pp. 550–555, C. Int. 21; Job B., p. 535, C. Int. 59.) This was only used one spring, 1850. It was designed for use on old ground as a *check*-row planter, and as such failed, as all automatic machines before and since have done, but for planting in drills and other modes it succeeded well. (Dan'l B., p. 554, Ints. 14, 15.) Planted 17 acres (p. 551) *in rows one way*.

The third machine was made in the spring of 1850. At this time he made a machine having two runners and two wheels. It was automatic and was used for planting that spring by Stowell, Dawson and Jerry Butler. (Dan'l B., p. 551–2; Job B., p. 527, Int. 42–4.) Butler says that Job B. planted corn for him in 1850 with a machine having two runners and two wheels, which supported a frame work. (p. 543, Ints. 2–9.) He says Stowell and Grove ploughed the ground planted by that machine, and on looking at his account book, he finds, under date of

May 11th, 1850, Grove credited with one day's ploughing, (p. 547, Ints. 29–34.) He also finds under date of June 5th, 1850, Job Brown charged for *sharpening* corn planter irons. (p. 543, Ints. 10–13.)

Nathaniel Smith did the iron work on these machines, and produces his books showing under dates of Jan. 15th and 25th, 1850, charges against Job B. for the work, (p. 762,) and in answer to Int. p. 763, he describes the machines, and he says Brown planted sod corn for him in the spring of 1850. (p. 764, Int. 6.) He says the wheels did not follow in line, but were outside the runners. (Int. 7.)

The identical iron runner from this machine is on exhibit here.

In the spring of 1851 *he made two machines.*

The first was constructed with two runners, followed in line by two wheels as coverers. This was designed to plant *in check rows;* (model is produced, marked G. C. Lanphere, No. 2.) The seeding device was so arranged that it could be used to plant automatically, or by the hand of the dropman riding on the machine. (Daniel Brown, p. 552.) He made *two* of this form (D. B., p. 554, C. Int. 13; Smith, p. 763.) Job Brown thinks this machine was made out of one of the 1850 machines altered.

Job Brown says (C. Int. 54) that he thinks he made this planter in 1853, but in answer to C. Ints. 67 and 94 he says he can't recollect *dates*, but the testimony of Daniel Brown and Nathaniel Smith conclusively shows that this machine was made in the spring of 1851. (Smith, p. 764, Int. 8, 10, and see Int. 5 on p. 763.) "Job Brown made another machine after this one (the 3-wheel one) a two-rowed machine, two wooden runners, one with a stiff tongue, one without a tongue; two men rode on it, or one man and a boy; the man that drove the team, and the boy moving a lever that let the corn out in the check-rows."

In the same spring (1851) he made the machine having *three* runners. (Model produced, marked G. C. Lanphere,

No. 1.) This had no rollers or wheels. Upon this machine he applied for a patent in Dec., 1852. Job says (p. 542, C. Int. 125) that he did not use this arrangement for covering the corn until after using wheels, and Daniel says (p. 555, C. Int. 28) that his father did not experiment in making planters *after March*, 1851, so that it is clear that this three-row planter was the climax of his experiments, and there he rested, satisfied. Mr. Harding, in the argument below, quoted from the testimony of Daniel Brown (p. 549, Int. 9) to prove that the experiments prior to 1851 were *unsuccessful, and abandoned.* Daniel there says: "During the winter of 1849 and 1850, he built *two* machines, which not working satisfactorily, he abandoned them." These of course were the three-wheel and two-wheel automatic *check-row* planters above described. But Daniel, on p.553, Ints. 14 and 15, explains what he means by this abandonment. He says: "there was planting done with them; they were *intended* to be *self* operating machines, and to get rows *both* ways. The failing to get rows both ways, so that the corn might be cultivated both ways, *and at which time it was generally supposed that corn could not be raised without cultivating both ways*, they were abandoned on that account, they doing the balance of the work to the satisfaction of Job Brown, on his premises."

Int. 15. "Aside from their failing to be self-operating check-row planters, how did they succeed?"

Ans. "To the satisfaction of Job Brown, on his premises, and the help that he employed to tend the corn planter by the same." (See C. Int. 27.)

And all the other testimony clearly shows that the machine of 1849, and these of 1850 were operated successfully, not only by Brown, on his premises, but by the neighbors.

Ivory Butler says (p. 543) Job Brown planted corn for him in 1850, with a machine having two runners and two wheels, and that, as shown by his account book produced, on the 5th June, 1850, he charged Job. B. for *sharpening*

the runners on that identical planter; they had become dull with use, of course; and in answer to C. Int. 24, p. 546, "Did you use the three-rowed machine more than one year?" says, "I did some, but I used the *two-rowed* machine more than I did the three-rowed machine," and Nathaniel Smith says (p. 764, Int. 7) that Job Brown planted corn in 1850 for him, with a planter having two runners and two wheels, and (p. 765, Int. 16) "Mr. Brown used the machine, or let it out to be used, to various persons."

Job Brown says, (p. 528, Int. 51), "There was work done with it in 1850, at Lawn Ridge; perhaps 200 acres were planted with it that year." As to the three-wheel machine, Job B. says (p. 537, C. Int. 83) that after thinking the matter over, he probably planted 120 acres with it in 1850.

The machines made in 1851 proved successful. Daniel B. says: These two machines were used to plant in the same field, (p. 552, Int. 11), and the wheel machine was such a success that he made *two* of them. (D. B., p. 554, C. Int. 13.) Job Brown says (p. 529) that he planted perhaps 50 acres with it in the spring of 1851. He made in 1853, about 40 of the planters having three runners. The successful use of this machine in the spring of 1850 is shown by the testimony of Ivory Butler. (p. 544.) Job Brown's son and Butler's daughter rode on the machine, one drove and the other dropped. Butler says: The work was well done; "it was a nice piece of corn." This season of 1851 was remarkably *wet*, and was so known all over the West. Job Brown says it planted that spring over 200 acres. (p. 525, Int. 8.) These machines, according to Daniel Brown, were made by March, 1851, and the proof shows they were operated at corn planting time, May 1st to 15th, in that year.

The Runner.

These runners were made first in 1849, and in subsequent years, and operated successfully. Smith says (p.

764, Int. 11) "I made the irons and altered the cutter of a corn dropper for Job Brown, May 1st, 1849; for a one-rowed sod dropper; the runner was as near like the model marked G. C. Lanphere, No. 2, as I could now make myself, in fact, it is exactly like it, no difference at all," (and see Int. 12, 13.) June 16th, 1850, he sharpened for Andrew Dawson the runner which he had borrowed or hired from Job Brown. (p. 762, Int. 2.)

The steel runner, made an exhibit, was taken from one of the machines made in 1850. (Job Brown, p. 528, Ints. 48–51.) Smith made the runners of the machines of 1850 and 1851. (pp. 762–3.) These runners possess all the qualities of those of appellant's.

Seat or stand on machines of 1849 and 1850, for driver, and seats on machines of 1851, for driver and dropman. (Job Brown, p. 529, Int. 57; Smith, p. 767, C. Int. 24.)

These machines are still in use as appears by the testimony, and have not therefore yielded to later improvements. In view of these inventions, with what grace can appellant claim to be the pioneer in the art of planting corn in *check* rows, by a machine having runners and wheels, and upon which the driver and dropman rode, in such position as not to interfere with each other?

JOHN KIRKMAN'S MACHINE, MADE IN 1850.

This machine was invented prior to the spring of 1850. He commenced to build it in the winter of 1849–50, and used it to plant corn in the spring of that year, about the usual time of planting. This would be from the first to the middle of May. He fixes the date of his invention from two circumstances. First, he built a house the same year, and the date of the year is cut on a stone in the house. Second, he sold a piece of land the same year, and, before testifying, he went to the deed to verify his recollection of the date. *In thus fixing the date* of his invention, he is supported by the following witnesses:

Thomas Grundy, who resided about one-half mile from Kirkman, from 1848 onward, saw him use this machine for planting corn in 1850. (p. 923.)

John Kirkman, Jun., son of John Kirkman, Sen., says his father built it in 1850, (p. 490, Ints. 3, 4,) the same time that he commenced his house. He says further, "I know my father built a corn planter in the spring of 1850. I fix the date of his building the planter from the following circumstances: we were then living on the hill; my father hadn't built his new house; he commenced the house in the spring of 1850." On the 41st page he says, "It was used on my father's farm; I saw it used in corn-planting time in 1851. He fixed," (he says, Ints. 22, 3,) "a seat on it. He used it with a seat in 1851."

Charles P. Snow, who moved to Illinois in the spring of 1851, gives, as a reason why he remembers the machine, that he had never seen a corn planter prior to this one, and hence was much interested in it. He says, (p. 504,) "that he resided within a quarter of a mile of Kirkman, and nearly opposite; that he saw John Kirkman use the planter in the spring of 1851, at the usual time of planting corn. He describes the machine, and gives the features of it, as shown in the model. He says (Int. 11) "It presented the appearance of having been made a year or so previous, and not a new machine. The circumstances which fix the date of my seeing this machine were, that it was the first year of my being in the State, and machines were new to me. It was also *a very wet season;* I distinctly remember the time; and my father died during that year, which impresses the time upon my mind." (Int. 12.)

When Snow saw the machine, the driver rode. He says, "that the driver stood on the back part of the machine, and by stepping backward and forward, would raise it out of the ground, or put it in, as the case might be." (Int. 8.)

The Court will notice, in the above quotation made from his testimony, that it had the appearance of not being a new machine; or, as the witness states it, "of having been made a year or so previous;" and this would bring the machine back to the year 1850—the time

John Kirkman says he actually made the machine. He says at the time he saw the machine Kirkman was living in a log house, and had not moved into the new one. His words are, "I know that he was living in a log house, away up on the hill, at that time." (C. Int. 77.) On the 66th page he says, "I remember distinctly that I saw the machine before my father's death, and he died in the fall of that year, after planting season,—that is, the year 1851." (C. Int. 45.) If the Court will turn to the deposition of J. Kirkman, Sen., it will be found that he moved into the new house in the fall of 1851. (p. 487, Int. 106.) He says, "I moved into it (the new house) in 1851—the latter part of the summer, or fall of that year." So that in respect to the place where he was living when Snow saw the machine, Kirkman, Sen., and Snow perfectly agree.

Herman Snow, brother of the last witness, says he saw the machine in question in the yard of Kirkman, in 1851. (p. 500, Int. 4.) He says, "I know of John Kirkman having a corn planter; I saw it in his yard in 1851." It will be noticed that when he saw the machine Kirkman was working on a chain. The witness says, (Int. 9,) "I remember seeing him tinkering with a chain in 1851; he said he was altering it. I can't swear positively, but my impression is that he was working with a little chain at the time I saw it. I think the motion of the slide, which made this corn drop, was given by this link chain, and he was altering that; I don't know, positively, how he was altering it in that respect." This shows the machine then a year old. It was first used with an L lever and that, between 1850 and 1852, was changed to a pitched chain. (p. 483, C. Int. 43.) Kirkman says, "I changed it, and substituted a pitched chain driving a vertical dropper, instead of a side dropper and L lever. This alteration was made between the spring of 1850 and the spring of 1852." So that the witness saw the machine at the time that Kirkman was actually changing it from an L lever to a pitched chain, and it must have been at least a year after he made and used the planter.

John Kirkman, Jr., says, on the 490th page, Int. 6, "it was worked by an L lever, attached to wheels working the lever." "The machine was altered in the spring or winter of 1851, and instead of using slides for dropping, he used a roller, driven by a pitched chain." (Int. 16.)

These three witnesses are corroborated by C. P. Snow, who says when he saw the machine, in the spring of 1851, (p. 504, Int. 13), "my remembrance is, there was a kind of lever, in the form of a carpenter's square, that moved; how it moved, I don't know, or how it operated; the particulars I can't remember." So that the testimony upon this point stands thus: John Kirkman, Sr., says that he made the machine in 1850, and that it had an L lever; and he altered it between that time and 1852 to a pitched chain. His son says that when first made it had an L lever. And in the spring of 1851, when C. P. Snow saw it, it had an L lever; and when his brother saw it in the summer, it was actually being altered from an L lever to a pitched chain.

Thomas Scholey is shown the iron runner in evidence in this case. He is a blacksmith by trade. He says he made that runner between the first of November, 1850, and the first of January, 1851. It is proved by Wm. Wrigley, that that identical runner was taken from an old machine which was sold to him by John Kirkman, Sr., and which was the original machine made in 1850. This witness, Scholey, gives the reasons why he fixed the date as between Nov., 1850, and Jan., 1851, and they are as follows, (p. 511, Ints. 8, 12): "I made this iron runner which I now have here; I made it between the first of November, 1850, and the last of January, 1851. My brother died in January, 1851, and he worked on it. I saw the machine in June, 1851, standing by the fence, about two hundred yards from John Kirkman's house. It had two of these runners." On the 517th page he says, "the time was just after I started my shop at Peoria. When a man just starts in business, a thing of this kind impress itself upon his mind. I know just the

month of the year I started business. I remember where I met Kirkman. I was fixing the old pump on the corner of the street." (Int. 93–4.) On the 85th page he says, "the reason that I fix upon the time as being prior to the first of January, is, that I know of my brother working on these runners prior to his death, and that he died in January, 1851." (p. 521.) He says, "that he remembers seeing his brother work on this runner in the fall of 1850. Has a distinct and positive recollection that he worked on all the runners, and that witness helped him." His reasons are, "that he was never able to hire anybody to do such work." (p. 522.) On p. 512, Int. 16, he says, "I am enabled to fix the date of making this iron runner, by several circumstances; one was, renting the shop of Jacob Kuhn; and another was, my brother's death. He first helped in this work; we were the only two working in the shop; I was not able to employ any help." He fixes *June*, 1851, as the time he saw the full-size machine at Kirkman's yard. There are two things that aid him to fix the time of seeing the machine at Kirkman's; "one was, that the young man in the buggy with me was from Pittsburg. He came out on a visit a short time after my brother died; his name was George Simons; he has been dead some four, or five, or six years, and has never been out since." (C. Int. 82–3.) He showed the machine to the young man Simons, who was with him. Elsewhere in his deposition, when asked if when he and Simons were in the buggy in June, near John Kirkman's house, he saw the planter with this runner in it, he says, "he did." (p. 519, Int. 38.) He says that this runner was built from a wooden runner, covered with iron, brought to him by Kirkman. His testimony upon this point is as follows, (p. 511, Int. 14): "Kirkman brought me a model of it; it was not a perfect model, but he brought something to give me an idea of it, as if he had been making experiments with it; but the principle of it was there, and there was very little iron about it. There was a thin plate of iron on the sides of the cutter;

I am not certain whether they were riveted on, or whether they were separate, but it was for that purpose—the purpose of cutting." (p. 517, C. Int. 107.) He describes the old runner brought to him by Kirkman, as follows: "As near as I can recollect, it was a thing about the shape of this runner which you have here—the iron runner that I have been talking about. I think these wings on the heel of the runner were made of tin or light sheet iron, and the front part of the runner, in front of the upright or perpendicular piece, was made of wood, and plated or shod of iron. It was in the shape of the iron runner, as near as I can recollect. He brought that to give an idea to me how he wanted it made."

It may be claimed that John Kirkman, Senior, and John Kirkman, Junior, say that the runner used by them on the machine was made of iron. If such is the case, they were evidently mistaken in that respect; and this mistake goes to show the honesty and truthfulness of their deposition. It is substantial truth under circumstantial variety; and the very discrepancy, if such exists, in this respect, goes strongly to show that what they have been testifying to are the recollections which an honest man would have of occurrences so long passed. Undoubtedly the first runner placed by Kirkman upon his machine was only made of wood, shod with iron, but of full size, and possessing all the functions of an iron runner. For it will be noticed that Scholey says that it was the same shape, and he took it for a model, which he could not well do, unless it was the same size. And on p. 519, Ints. 45, 46, when asked about the size of the runners that Kirkman furnished him, he says, "it was the same size of the iron runner, and *had the appearance of having been used.*" This is consistent with the statement by Kirkman that he invented and used it in 1850; and finding, on trial in 1850, that the machine worked well, he concluded to have an iron runner, rather than a wooden one shod with iron. Indeed, a runner shod with iron answers the same purpose as one of iron. They are

proved to have been used upon quite a number of machines, indiscriminately, with iron runners; it being only a question of preference of one for the other; Brown himself not prescribing the material, and often using wood shod with iron.

But whether the runner was made full size or not, it is in advance of Brown; for he only pretends—and in that he is not supported by the proofs—that he completed his half-size machine, in May, 1851. This wooden shoe was of the same form and size; and, in any event, this iron one was made prior to any time fixed by George W. Brown for the making of his half-size machine.

To aid in fixing the date, we call Joseph C. Fry, a physician, who says that the brother of Scholey died January 19, 1851 (p. 524), and he produces the entry on his book to show it. On the cross-examination, Scholey is asked in relation to his account book, and on (p. 514, C. Int. 37), he says that his book of 1850 he gave to one of his daughters, as a scrap book; but he has a book of 1851 or 1852. He is asked on the 75th page to read therefrom, and under date of February 17 is found a charge to Kirkman for a coulter, and other repairs, which, he subsequently states, were on corn planters. He says that the account commences May 28, 1851. He is sought, on cross-examination, to be made to state that these charges relate to the very runners in question; but he distinctly states that they bear no relation to the one testified to; and he gives his reasons for it in his recollection of the date, in the fact that his brother worked upon this runner; and from the further fact that he could not have made the runners for any such price as was charged in his book: reasons most conclusive.

William Wrigley says that he saw the corn planter in question at Kirkman's house in 1855. It looked like an old one that had been in use several years, (p. 495); and subsequently he purchased that machine, and from it was taken the runner in evidence.

On the part of the complainant it is conceded that

Kirkman did make a machine like the model in question, and having all the functions; but they undertake to show that he made it at a subsequent date. Their testimony is mainly of a negative character. And they have examined upon this point Francis P. Kingsley, John Kingsley, John Dexter, George O. Kingsley, Harrison Smith, and Thomas Hanlon.

Francis P. Kingsley says he knows of Kirkman making a corn planter; to the best of his knowledge, it was made in 1852 or 1853 (p. 67.) He says that the dropping arrangement was a chain with links. He arrives at the date by the fact that he was building one at the time, and there was some little rivalry between him and Kirkman; and he fixes the time from the fact that he built a barn that was finished in the spring of 1852; but he is not certain whether it was the same spring that he finished his barn, or the spring after. He determines the time when he finished his barn from his books. He went to Kirkman's and examined the planter, and it was not quite completed. He knows of Kirkman having another planter built by Storey, which "Kirkman wished him to go and see while it was being built;" which he did. (p. 69.) He says he cannot pretend to swear positively to the year when he first saw the planter, or when he saw the one at Storey's. Aside from the building a barn he cannot fix the date of his making his corn planter. He says he has no facts by which he can fix the date of seeing the machine at Storey's. The only fact he does swear to positively is, that Kirkman built a planter, and he a barn. The date of his barn he can ascertain. It is pure matter of unsupported memory whether the machine and barn had anything to do with each other. He says Mr. Douglas, Brown's attorney, has talked with him four times in relation to what he knew. We think that Mr. Douglas did not meet with very great success, as the witness admits he cannot be positive.

John Dexter says (page 73) that he was frequently at Kirkman's house in 1850; that he is not aware that he

had a corn planter or drill; nor did he hear any of Kirkman's family say, during that year, anything about it. They did, however, occasionally talk about a planter of James Abbott, of Brimfield.

On cross-examination, this witness says that he left Kirkman's house, and was only back there six or eight times, for from one to four hours at a time; but cannot give the number of times exactly.

George O. Kingsley, another of the Kingsley family, is called for complainant (p. 74); for the Court will notice that of their five witnesses on the Kirkman machine, they get three from the Kingsley family. He says that he was working on John Kirkman's house in the spring of 1851. In fact, he knows it was 1851, as well as he knows anything; that his brother was building a barn in 1851. He knows of John Kirkman's making a corn planter, but he has no knowledge of his using it before 1852. He identifies the model with the one he saw, excepting the bands. He thinks (Int. 12) that the date of building Mr. Kirkman's house was cut upon a stone. He says he has often read the date, but he don't recollect anything about it. He thinks there was a date cut upon stone—can swear there was; and he is pretty well balanced in his mind whether there is a date on the house or not. Finally concludes there is a date on the house. He is then asked whether he can swear to the date cut on the stone; he says, "No, sir; I think the date on the stone, however, was 1851." (Cross Int. 10.) It is abundantly proved in this case that there is in the house a stone with the date of the erection of the house cut upon it, and that date is 1850. So that, if the witness cannot remember the date cut upon the stone of Kirkman's house, or whether there is a stone in the house with the date cut upon it, which he repeatedly must have seen, living but a short distance from it, not much, if any, reliance can be placed on the time he fixes at which Kirkman made his corn planter, or on his memory generally. The Court will notice that he does

not pretend to know the date at which Kirkman made it —simply the date when he saw it first.

The next witness called is Harrison Smith; he is a relative of our witness Snow. He says that he saw the machine in the summer of 1852; that he was near neighbor to John Kirkman in 1851, and was there very frequently, and that he did not see the machine in question.

This testimony is of the most negative character; for he is asked (p. 111, C. Int. 17) if he can state that Kirkman did not have a corn planter in 1851, and he answers, "No, sir." He simply means to state he had no recollection of Kirkman having one—that is all.

Thomas Hanlon (p. 155) worked upon Kirkman's house in 1851 and 1852, and says that he did not see a corn planter. That is all there is in his testimony.

We therefore say, the clear weight of evidence is—that Kirkman made his machine so as to plant corn with it in the spring of 1850.

The argument of Mr. Harding below tends to strengthen this, as all he cited to show that the machine was not made till the spring of 1851, is the evidence of Hanlon, Scholey, John Kirkman, Jr., and John Kirkman, Sen. Now all of the citations made from Hanlon are that he worked on the house of Kirkman in July, 1851, and that Kirkman then lived in the small house. If these citations are made to contradict Kirkman they utterly fail, as Kirkman himself says he did not move into the new house till the fall of 1851, and that the house was not completed till that fall. As before stated, all the witnesses know, besides the above facts, is, that they do not recollect of seeing a corn planter—simply negative against positive testimony. Then he cites the evidence of Scholey, who fixes the making of the iron runner prior to January, 1851, and distinctly says he saw the full-size machine at Kirkman's, in June, 1851. So that this is an unfortunate witness for Mr. Harding to cite, immediately, as he does, after Hanlon, who swears he did not see the machine in 1851,

because this witness did see it in June, 1851. Mr. Harding forgets to notice that the iron runner was made from a wooden one, shod with iron, which had been used, clearly thus sustaining the Kirkman's. Now what remarkable citation does Mr. Harding make from John Kirkman, Sen.? Why, he seeks to show that it was an unsuccessful experiment. He starts with 1851 as the year of the invention. Kirkman in this differs from Harding, and makes the invention date in 1850. But was it an unsuccessful experiment in 1850? It was so successful that he planted half an acre of corn with it. It did this work well. What more could be asked? *That same machine made in* 1850, *in all its parts* essential to the present inquiry, from that day on, did work, successfully and well. Kirkman used it himself down to the time he sold it, in 1856, to William Wrigley (p. 495,) who says it was practical, and gave good satisfaction for planting in drills; he used it two years and sold it; and from the same identical machine the model in evidence was made, and the iron runner taken. No question of the identity of the model with this machine is raised; Kirkman, Sen., and Jun., testify, as well as Wrigley, to the purchase and sale. Now what change has been proved to have been made in the machine in any of its parts after it was invented? He changed it from an L lever to a pitch chain; is that the subject matter of this inquiry? Did that affect its functions so far as this case is concerned? He changed a wooden runner, prior to January, 1851, to the iron one in evidence. Was there any substantial change in form in so doing? Was not the wooden runner as complete an answer to the claim of Brown as the iron one? Is the material of the runners any part of this inquiry? Did not Geo. W. Brown make his of wood shod with iron? A very significant point is made—"he built a shed to put it in," therefore it is not a success. Queer deduction this! We should make another deduction—that it was a success, and therefore he cared for it, and built a shed to put it in. Why take so much pains

with an uncompleted, unsuccessful experiment? Then John Kirkman, Jun., is quoted: that, after trying the machine to plant corn, he went on and did planting by hand. Then he is asked, did the planter work to suit him? and he answers, "I think not—something was the matter with the dropper." Was anything out of the way with the runners, or the arrangement of the frame? Not at all. The thing that is not in controversy in this case, *i. e.*, the dropper, did not work to his satisfaction. Then Mr. Harding quotes from Kirkman, Sen., "that he has no clear recollection of using it in the spring of 1851." He has already sworn that he planted half an acre with it in the spring of 1850. His testimony is simply that he does not remember planting with it in the spring of 1851. His son says he did. C. P. Snow (p. 504, Int. 8) says, he saw Kirkman planting corn with it in the spring of 1851. (See also Cross Ints. 15, 16, 41.)

Mr. Harding then makes the point that Mr. Kirkman does not pretend it to be a check-row planter. Nor does any one. But, prior to Geo. W. Brown, Job Brown did make a check-row planter. Kirkman's could have been changed into one. He then cites charges on Scholey's books of work on coulters. If he had cited elsewhere, from his deposition he would have found that Scholey distinctly says, these charges do not relate to the runner in evidence. This disposes of all Mr. Harding has said in regard to the Kirkman machine. We will add that here was such a use of the machine of Kirkman as will and does anticipate Brown. Kirkman reduced his theory to practice, and put his machine into use, and successful use. (See *Rich* v *Lippincott*, 2 Fish. 7; 1 Fisher R. 397; 2 Fisher R. 463, 529.) The limited use does not prevent it being a full and complete answer to the claim of Geo. W. Brown. (Curtis on Patents, sec. 87.)

The elements of the machine can be readily seen from the model, and also the testimony of Kirkman, Sen. and Jun. A summary of the same may be as follows: It was a machine of frame work, supported in front on two runners, like ap-

pellant's, and in the rear by two wheels, which followed in line with the runners, and used not only as bearers, but coverers, with a hinged joint so constructed that the driver, by changing his position on the machine, could sink the runners into or raise them out of the ground, in easing the machine over intervening obstacles, or in turning around, and with a lock stop or block, to prevent the machine from tilting backwards. The runner had an upward inclined edge, widening at the heel, to allow the seed to drop through it, the seed hoppers being located over the heel of the runner. This runner had a sharp edge to cut or break through intervening obstacles, and was long enough to furnish a support for the frame. The frame constituted a lever, of which the wheels were the fulcrum, so that the driver, by stepping to the rear of the machine, by means of this lever raised the runners out of the ground in turning around. At one time a seat was placed upon it as shown in one of the models, upon which, by sliding backward and forward, the driver raised or depressed the runners.

Charles Finn's Machine—one made in 1851, and one in 1852—A Check-Row Planter.

This machine of Finn's is offered in evidence by the defendants as a *check-row* planter, invented by Finn, as he swears on page 92 4 in the latter part of the summer or the fore part of the fall of the year 1851, at which time he worked the same for experiment; that in the spring of the year 1852 he made another machine, and also a model, and transmitted an application for a patent, which was filed on the 23d of April, 1852, and rejected. A copy of that model is in evidence in this case.

The testimony of *Morgan Hart* is also in evidence. (p. 60.) He testifies that this machine was operated in the usual corn-planting season of 1852, in the field of one Rose, in Laporte county, Indiana, and planted several acres of corn; that it was a check-row planter; that the

dropper rode on the machine, seated on the seed hoppers, in such position as to see the previously made furrows or marks upon the ground, and dropped in the check rows; that the corn so planted with it came up, and was cultivated both ways.

This machine required two motions of the arm at each operation of planting, and in that respect made the machine more laborious to operate than those of Jarvis Case, and the complainant, hereinafter mentioned; but it will not be contended by the complainant that the machine was not practical and operative. We have fully described its practical operation in discussing reissue No. 1095.

Jarvis Case's Machine, invented in 1852-3—A Check-Row Planter.

This machine was invented in Selma, Clark county, Ohio, in the fall of 1852, and winter of 1852-3. (See deposition of Case, page 666.) It was a one-horse machine, and was put into successful and practical operation near Selma, in *March*, 1853.

In December of that year, Case made application for a patent, and on the 16th of January, 1855, a patent issued to him, which was surrendered, and a reissue had thereon November 16th, 1858. It was upon that reissue that he sued the complainant Brown. He subsequently surrendered that reissue, and obtained another reissue April 11th, 1866, which is in evidence.

He says he planted about seventy acres of corn with that machine at Selma, in the spring of 1853; that he made and sold about five hundred of the machines himself, and from four to seven hundred were made and sold by other parties; that it was a practical, good working machine, and operated as a check-row planter.

Machine of Edward P. Farley, 1853.

A model of this machine is in evidence in this cause. Edward P. Farley testifies, on page 677, Int. 7, that the

machine was invented not to exceed sixty days previous to his application for a patent, February 3, 1853. He thinks the model might have been completed some time in January, 1853. That model was left at the Patent Office. He says a full-size machine was made by his partner, or agent, Clinton Jackson, in Laporte, Indiana, in the month of April, 1853, (Int. 4); that he went to Laporte and saw it operate in the streets to test the dropping, which was done in a satisfactory manner; that he himself made a full-size working machine in August, 1853, like the model; that the driver rode in a standing position near the center of the platform, or forward or back of the center, as the case might require, by which motion the depth of the planting was regulated; and in turning at the ends, a movement of the driver to the rear of the platform would so elevate the front part of the platform that the turning was performed with ease; also, by a certain motion of the lever upon the side of the platform by the driver, the operation of dropping was suspended or carried on at his pleasure. He further states that the lever fixed upon the platform was so constructed and attached to the springs of the dropper that the operation of dropping could be performed by a motion of that lever *in the hands of the operator or driver*. (Int. 10.) He says that he knows of the machine planting about one hundred acres of corn in the spring of 1854, in the town of West Creek, in his own neighborhood, and a good share of it on his own farm. He further says that it sometimes occurred that the revolution of the wheel would carry the machine too far forward, and in such case he would use the lever and drop the hills by hand; that he thinks the machine was so constructed that if used as a hand dropper, a driver and a dropper could both ride on the machine and operate it successfully; and he thinks that the dropper could have occupied a position on the machine to enable him to see the previously made rows distinctly; and he thinks he could have dropped the corn at the desired spot.

This machine also contained a lock stop or block, which prevented the rear end from tipping too far down; and the runners were depressed by stepping in front, so that the motion of the driver on the platform not only regulated the depth of the planting, but raised the runners in turning around. This machine ante-dates the second form of complainant Brown's machine, which latter was not completed until after the 20th of April, 1853.

When is a Machine a successful experiment so as to defeat a subsequent Patent?

We here cite some of the many authorities bearing upon the above inquiry.

In the case of *Rich* v. *Lippincott*, 2 Fish. 7, Judge Grier, after the decision in *Gaylor* v. *Wilder*, 10 Howard, and construing that decision in relation to the very patent passed upon by the Supreme Court, says:

"The mere speculation of a philosopher or mechanic, never put into actual practice or operation, will not deprive a subsequent inventor, who has employed his labor and talents in putting it into practice, of the reward due to his ingenuity and enterprise. But, if the first inventor reduced his theory to practice, and put his machine or other invention into use, the law never would intend that the greater or less use in which it might be, or the more or less widely the knowledge of its existence might circulate, should constitute the criterion by which to decide upon the validity of any subsequent patent for the invention. A patent may, therefore, be defeated by showing the thing secured by the patent had been discovered and put into actual use prior to the discovery of the patentee, however limited the use or knowledge of the prior discovery might have been."

The rule is, as laid down by Curtis on Patents, § 87, "If the thing patented has once been actually and completely invented or discovered before, HOWEVER LIMITED

THE USE, the patent is invalidated," etc., and we refer the Court to the discussion on this point in the sections immediately following.

In *Cahoon* v. *Ring*, 1 Fisher, 397, Judge CLIFFORD, in charging the jury (p. 409), lays down the rule for distinguishing mere experimental from completed machines thus: "You will inquire whether it was in point of fact a machine completed and *reduced to practice*, in contradistinction to an experimental machine, or a machine made by the supposed inventor in the prosecution of experiments and inquiries, and that unless it appears to your satisfaction that such machine *was actually used as a seed sower, in sowing seed for agricultural purposes*, you are warranted in presuming that it was a mere experiment."

In *Waterman* v. *Thompson*, 2 Fisher, 463, SHIPMAN, J., charged the jury thus: "If he merely made an experiment and failed, abandoning his contrivance *because it would not work*, then it is of no account. But the mere fact that he ceased to use it because he had no further occasion to do so, is, of itself, of no importance;" and in *Sayles* v. *The Chicago & N. W. R. R. Co.*, 2 Fisher, 529, DRUMMOND, J., says: "I admit fully the law as contended for by the counsel for the defendants, that when an improvement or a machine has been *once made and used*, it is not necessary that it should be used up to the time that another person may make a similar improvement. If it has been *once used*, and is a practical improvement or machine, no one else can claim to be the inventor." In *Case* v. *Brown*, 2 Fisher, 268, his Honor, Judge DRUMMOND, had occasion to apply the same law to the Finn machine, only one of which was ever made, and which was used in the field, planting, a part of one day, and the machine then abandoned. The present complainant, Mr. Brown, by his counsel below, Mr. Goodwin, contended, and we think properly, that if that single experiment demonstrated the machine as practical, the mere fact that it was abandoned, from whatever reason, was

entirely immaterial. The fact is, that the machine of Remy & Kelly was only once used, but the evidence conclusively shows that it was a successful and practical operating machine, that only one was made, and it was abandoned because the wants of the people and the limited area of the fields in that vicinity created no demand for such a machine. True, a model was deposited in the Patent Office, as also was the case with the Finn machine, but this fact could not bring support to the inquiry whether they were practically useful machines.

In reference to the dates of these several inventions, which we insist are prior to the appellant's, we suppose the rule is clear that no presumptions will be indulged as to date of inventions, prior to the dates of his several applications.

His first patent was applied for, Dec. 6, 1852, and his second, March 1, 1855. If he seeks to prove invention some time prior thereto, he must establish it by the preponderance of the evidence. He in this respect stands on a footing with all others, and although he says he made a model of his machine of 1853, as early as Jan., 1851, and made a half-size machine, and experimented with it, he *thinks* as early as May, 1851, yet he must satisfactorily establish it. It is not very important, however, for the proof clearly shows Moffit's machine in use in 1834; Job Brown's runner in use in a one-row machine, in 1849; his two-runner and two-wheel machines, in 1850 and 1851; Abbott's in 1846 and 1848; Remy & Kelly's in 1849; Kirkman's in 1850. And as to his double valve seeding device, this was not employed by him until 1854, and it was used by Finn in 1851, and by Case in 1852–3.

In conclusion, our apology for the length of this argument will appear in the fact that we are arguing two cases in one, and examining nine reissues, all of which are more or less involved in this controversy, and that a large number of witnesses have deposed, whose testimony

is more or less conflicting, requiring careful sifting, and a great variety of machines introduced showing the state of the art. While we fear that the Court is wearied, we beg them to remember that an adverse decision would bring pecuniary ruin to our clients, who in good faith, acting under their own patents, have invested a very large amount of capital in the manufacture of corn planting machines, and furnished the farmers a valuable implement, and while this consideration cannot affect the judgment of this Court should it appear that they actually infringe valid patents of appellant, we trust it will insure a patient and careful examination of this argument.

RECAPITULATION.

PRIOR MACHINES.

English Patents.

James Richards' machine, in 1800.
Richard Hornsby's machine, in 1839.
Certified copies of both produced.

Johnson's Farmers' Encyclopædia,

Published in London in 1842, from pages 390 to 397, inclusive, describes—

1. Cook's Drill.
2. Suffolk Drill.
3. Bedfordshire Drill.
4. Lord Western's Drill.

Joab Moffit's Machine.

Check-Row Planter, made in 1834.

1. Model made by William A. Dougherty.
2. Walnut model, with bow in rear.

R. S. Thomas.

Application for patent July 3d, 1841.

Henry Todd.

Patent December 15th, 1843. Model produced.

REMY & KELLY.

Check-Row Planter, made and used in spring of 1849.

Patent applied for, June 4th, 1850.

1. Model identified as copy from Patent Office, by William C. Dodge, produced by defendants.

2. Model (false, as we say) produced by complainant.

JAMES ABBOTT.

1. Machine of 1846, two coulters, followed by two rollers to cover. Model produced.

2. Machine of 1848, two runners, with one wheel in center of machine. The model produced.

3. *Runner* of wood, shod with iron; is made exhibit. *Made and used in* 1848, and for the four succeeding years, (p. 3.)

JACOB MUMMA.

Patent November 20th, 1849. For grain drill.

JOB BROWN.

1. Machine made and used in the *spring of* 1849, and thenceforward until worn out, with *one iron* runner. Automatic.

2. Machine made with three wheels, one in the middle; two runners of wood, followed by two rollers to cover the corn. *Automatic.* Made in *February*, 1850. Also one made same spring with two iron runners and two wheels; automatic runner. Made exhibit.

3. Machine with two runners, followed by two wheels to cover; driver and dropper both rode. *Made by March*, 1851. Model produced, marked G.

C. Lanphere, No. 2. This was a check-row planter, and two made and used that spring in same field with the planter containing three runners which is next described.

4. Machine with three runners; made and used in spring of 1851; 40 made and sold to farmers in 1853.

Application for patent thereon, December 31, 1852. Model made an exhibit. *Check-row planter.*

John Kirkman.

First form of machine made in April, 1850, and used in May. This had, 1st, wooden runner, shod with iron; 2d, L lever to drop with; and changed to

Second form of machine in spring of 1851, making, 1st, runner wholly of iron; 2d, changing L lever to roller and pitch chain. Used that spring and onward for years, until worn out.

The iron runner made an exhibit.

Charles Finn.

Check-Row Planter, with two valves or double drop.

1. Machine made in summer of 1851. Patent applied for, April 23d, 1852.

2. Machine made in spring of 1852.

Jarvis Case.

Check-Row Planter, with two valves or double drop.

Invented in the winter of 1852–3.
Full-size machine used March, 1853.
Patent applied for, December, 1853.
Granted January 16th, 1855.
Reissued November 16th, 1858.
Reissued April 11th, 1866.

EDWARD P. FARLEY.

Application for patent February 3d, 1853.
Invented not to exceed sixty days previously.
Model completed January, 1853.
First full-size machine, made April, 1853.
Second full-size machine made August, 1853.

GEORGE W. BROWN'S MACHINES.

1. Half-size machine or model made and used after grain harvest in 1851, having then no rollers or wheels to cover, but like Job Brown's three-runner planter of 1851.

2. *First full-size machine* made and used *after the 20th of May*, 1852; no driver's seat; small log wheels.

Patent applied for December 6th, 1852.

Patent granted August 2d, 1853.

Antedated to February 2d, 1853; surrendered and reissued February 16th, 1858; again surrendered and reissued September 11th, 1860.

3. Second form of machine, with driver's seat, made after April 20th, 1853. This had no second valve or flipper in the seed tube to form double drop.

4. Third form of machine made in fall of 1854, like last form, and, in addition, containing the flipper or valve in seed tube. This was the curled maple planter. In the spring of 1855, first *sold* machines with said valve.

Application for patent on second form of machine March 1st, 1855. Model contains long seat for driver, and valve in seed tube.

Patent granted May 8th, 1855; surrendered and reissued November 10th, 1857; again surrendered and reissued December 11th, 1860.

JAMES SELBY.

Patents dated—

August 30th, 1864; surrendered and reissued Oct. 6th, 1868.

Patent to Selby September 15th, 1858, for double-drop device, offered by way of illustration only.

GEORGE I. BERGEN.

Patents dated—

December 1st, 1863, and reissued on April 18th, 1865.

Second patent March 7th, 1865.

SAMUEL B. GOOKINS, AND
JAMES H. ROBERTS,
Attorneys for Appellees.

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Robert Clarke & Co., Printers, 65 West Fourth Street, Cin., O. [January, 1873.]

IN THE

Supreme Court of the United States.

GEORGE W. BROWN, APPELLANT,
vs.
RUFUS B. GUILD, EX'R, ET AL. } No. 102.

Appeal from the Circuit Court of the United States for the Northern District of Illinois.

Brief of S. S. Fisher, of Counsel for Appellee.

Oct. 2 1874

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GEORGE W. BROWN, APPELLANT,
vs.
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Appeal from the Circuit Court of the United States for the Northern District of Illinois.

Brief of S. S. Fisher, of Counsel for Appellee.

I. This was one of four causes argued in December, 1868, before Judges Drummond and Treat, who, by consent of counsel, sat together, as one of the cases was pending in the Southern and the other three in the Northern District of Illinois.

II. The controversy is almost wholly one of fact. Much testimony has been taken to prove the existence of the prior machines of Abbott, Job Brown, Kirkman, Remy &

Kelly, Moffitt, and others, and it must be evident from a consideration of the case, or of the opinion of Judge Drummond, that the fact of the prior manufacture and use of these machines is a controlling feature in the case.

There is undoubtedly abundant evidence upon which the Court could find that each of these machines was in existence prior to the invention of complainant. Some of the proofs are contradictory, but there can be no question that there is testimony to support the affirmative of the issue tendered by the defendants upon the question of novelty.

Upon this state of facts, it is submitted that the rule of the Supreme Court, announced in the case of *The Ship Marcellus*, 1 Black, 414, is fully applicable to the present case.

In the case of *The Ship Marcellus*, the Court say:

"The only question proposed by these pleadings is one of fact. In this, as in all other cases of the kind, there is great discrepancy and conflict in the testimony of the witnesses as to every averment in the pleadings. We have had occasion to remark more than once that when both courts below have concurred in the decision of questions of fact, under such circumstances, parties ought not to expect this Court to reverse such a decree, merely by raising a doubt founded on the number or credibility of witnesses. The appellant, in such case, has all presumptions against him, and the burden of proof cast on him, to show affirmatively some mistake made by the judge below in the law or the evidence. It will not do to show that on one theory, supported by some witnesses, a different decree might have been rendered; provided there be sufficient evidence to be

found in the record to support the decree that was rendered." See also *Walsh* v. *Rogers*, 13 How, 284; *The Water Witch*, Ib. 494; *The Narragansett*, 1 Blatch. 211; *Cushman* v. *Ryan*, 1 Story, 95; *The Grace Girdler*, 7 Wall. 204.

Nor has it been thought necessary that *two* courts should have concurred in the finding to warrant the application of the rule.

In the case of *The Grafton*, 1 Blatch. 177, which was an appeal from the District Court, Nelson, J., said:

"This case involves two questions of fact." . . . "Both questions strike me as being exceedingly close upon the evidence, and are so nearly balanced that it would be wrong for an appellate court to interfere. According to the impression which the examination of the proofs has left upon my mind, I should not feel justified in disturbing the conclusions of the Court below, whether for or against the appellant, in respect to either question, as I think different minds might very well arrive at different conclusions. To warrant a reversal upon a mere question of fact, the preponderance of the evidence should be of a somewhat decided character, such as would justify the granting of a new trial in a court of common law, on the ground that the verdict was against the weight of evidence. It seems to me that this principle should govern this Court in reviewing a question of fact determined by the District Court."

And the same principle has been applied to appeals in equity cases.

In *Medina County Mutual Fire Ins. Co.* v. *Bollmeyer*, 5 Ohio St. 107, the Court say:

"A decree, like a verdict, will not be set aside on the

ground of an erroneous finding, unless it is clearly against the weight of the evidence, or clearly unsupported by it."

In what follows in this argument, it will be assumed, in accordance with the above principles, as well as upon the testimony, an abstract of which will be found in the brief of my associate, that the machines which I treat as prior to the inventions of complainant, were, in fact, invented and used prior to his invention of the improvements claimed in either of his patents.

III. Letters patent were granted to George W. Brown, complainant, August 2, 1853, ante-dated to February 2, 1853, for an improvement in seed-planters "for planting corn and smaller grains."

The description of the operation of the machine is exceedingly vague, and so little did the patentee esteem the feature of "check-row" planting that he devised and described an apparatus whereby the planting could be made automatic. This patent will be found on pp. 31, 32, 33, of the book of exhibits.

There were but two claims in this patent.

This patent was reissued February 16, 1858, when the two claims of the original patent were consolidated into one, for the shoe. See pp. 80, 81, 82, exhibits.

These patents not being sufficiently comprehensive, the patent was again reissued December 11, 1860, and divided into *five* separate patents, embracing seven claims, all of which are involved in the present action.

Letters patent were also granted to the said George W. Brown, May 8, 1855, for an "improvement in seed-planters."

This patent had but a single claim. See pp. 54, 55, exhibits.

This patent was reissued November 10, 1857, with a single claim. See pp. 57 and 58, exhibits.

On December 11, 1860, the last-named reissue was again reissued in *five* divisions, embracing six claims.

It will thus be observed that the two original patents and three claims have, been expanded into ten patents and thirteen claims.

IV. Only a single machine was ever constructed under the patent of 1853.

See Record, testimony of George W. Brown, p. q.

V. The defendants are not mere users of machines which they have purchased, and for the making of which they are not responsible, but they are largely engaged in the manufacture of machines, of which models are presented. Selby & Co., of Peoria, are, I believe, among the very largest manufacturers in Illinois, and an adverse decree would be ruinous to them, for it would sweep out of existence a large amount of capital, with the factories which they have established, and the trade which they have built up for a series of years.

It is true that this is no answer, if they be really guilty of infringing on the rights of the complainant; but where parties have been engaged for years in the manufacture of implements, in good faith, protecting that manufacture under letters patent, the Court will, I am sure, scrutinize very carefully the claims of one who seeks to monopolize the entire art to which the manufacture belongs.

I. *What was the state of the art when complainant made this invention?*

Seed-planting machines are very old. I say "seed"-planting machines, for the court will observe that this invention is called "an improvement in seed-planters," and is not described by the patentee, in any part of his numerous specifications, as applying to the corn-planter alone. The term "seed-planter" generally includes seed-drills, and these are as old as this century. They are described in agricultural works, one of which, "Johnson's Farmers' Encyclopedia," has been put in evidence in this case. The answer of the defendants calls attention to what is described in this book as "Cooke's Drill;" which is found in this work beginning with the title "Drilling Machines," on page 390, and continuing, page by page, to the close of the article on page 397. Special reference is made to what are called "Cooke's Drill," the "Suffolk Corn and Manure Drill," the "Bedfordshire Drill," "Lord Western's Drill," and "Hornsby's Patent Drop Drill," which is also described in letters patent, of which the defendants present a certified copy. Reference is also made to the "Drop Drill" patent, granted to Richards under English letters patent. All of these machines, in their general structure, consist of two supporting wheels carrying a hopper, in which is contained the seed to be dropped into the ground. Below this hopper were located the runners, or the teeth, or harrows as they are sometimes called, or drills, or hoes, which were tubular in their construction, and drawn forward by a drag at the forward part of the machine, having a flexible tube of some kind, either of metal, leather, or in

modern times of rubber, extending from the seed box to the aperture in the teeth or planters, so that in the progress of the machine over the ground the seed passes from the box into the drills, and was dropped into a furrow made by the forward movement of the teeth. The action of the feeding apparatus for the purpose of dropping the seed was either continuous, as in some machines for sowing in continuous lines, or it was intermittent, where it was desired to deposit the seed in hills.

It was a necessity in the construction of these machines that some device should be applied to every one of them for raising the seed apparatus out of the ground, for the teeth of these drills were substantially of the shape of those in the Remy & Kelley apparatus, and such as are found in the ordinary wheat or grain drills used throughout the length and breadth of the land. In these machines there is a seed hopper at the top, eight or ten drills below, each drawn by a drag extending to the front part of the machine, and having the same arrangement whereby they may be raised separately or together from the ground. The drills form a furrow as the machine passes over the field, and the seed, dropping through the tube, descends to its place. When the teeth encounter roots, or large stones, or obstructions of any kind, or turn corners, and it becomes desirable to lift one or more teeth from the ground, the lifting apparatus is called into action, and the teeth are elevated accordingly. Indeed, the liability of the teeth of these drills to breakage from obstructions was so great that in addition to some device for raising them from the ground, they were also attached to the drag bar by a wooden pin, so that when a tooth met an obstruction below the surface

of the earth the wooden pin would break, thus insuring the safety of the tube. I repeat, therefore, it was a law in the construction of these machines, made absolutely necessary by the functions they had to perform, that there should be an independent action between the seed apparatus and the carrying wheels on which the machine itself was borne. Accordingly, in all the machines described in Johnson's Encyclopedia, we find this double action. In some of them the drills, or teeth, can only be raised together; in others they may be lifted separately or together; in some they are mere tubes for the conveyance of the seed and the formation of the furrows; in others, the lower part is fashioned like a runner sloping upward to assist the tooth in passing over obstructions.

In the Bedfordshire Drill, for instance, the machine was pushed by an operator using the handles which projected in the rear. The runners are very much the same shape as the teeth in the present corn-planting machine. They are runners sloping upward, curved at the bottom, and dragged over and through the ground, containing in themselves the whole apparatus for dropping the seed. In the Hornsby Patent Drop Drill, the Court will see that the share is used for the purpose of cutting the ground in advance of the teeth. This share has a rounding edge, and does not run to a point, but is curved for the purpose of enabling it to pass rapidly through and over the earth. In the patent of Richards the lever is fastened in the rear, so that, by pressing upon it, the whole machine will be tipped forward on the joint. This patent was granted in the year 1800. Numerous patents have been granted in this country upon the grain-drill or seed-planter, as it is called indif-

ferently in the Patent Office. One granted to Jacob Mumma is put in evidence, in which the patentee describes the rear part of the frame as jointed, with a long lever attached to it by which the whole of the seed apparatus is lifted from the ground, in order to transport it from place to place, very much as George W. Brown's machine of 1853 is operated, so far as the joint and lever are concerned. In the year 1841, one Thomas obtained a patent for a cotton planter, which is important only as illustrating the state of the art. It consisted of two frames, the forward part supported on wheels, and drawn forward by the horse, a hinged frame being hung in the rear, which, by dragging upon the ground, operated to cover the furrow after the seed was deposited. The frame was in two parts, the apparatus for depositing being connected with the forward part, and the rear part being used to cover the seed, corresponding, in this respect, with the functions of the two parts of the Brown machine.

An examination of the machine patented to Henry Todd, in 1843, becomes important, because it was referred to by the Patent Office when George W. Brown made an application for his reissue. Todd's machine contained the runner, or shoe, not only acting like the teeth of the old drill to form a furrow, and deposit the seed, but being in the form of a sled, or slide, and serving to support the frame, and to enable it to mount over obstructions, so that it need not be lifted from the ground upon meeting such obstructions, as was necessary in the case of the seed drill. In the rear of the runner, or of the frame which was supported upon it, was a runner which was hinged to this frame, thus forming a double frame, or two frames, con-

nected by a hinge, but having an independent action. The roller was a covering roller, and in this respect precisely similar to those subsequently employed by Brown. What is meant by independent action is, that the forward part of the frame may be raised or lowered without lifting the roller from the ground, or that the roller may rise and fall without disturbing the runner, or shoe.

The function and mode of operation of the Todd roller is easily seen. There are two wings in the rear of the furrow-opener, or runner, so that, as the latter passed through the earth, and threw it out of the furrow, depositing the seed, these wings caught the earth, and threw it back into the furrow, heaping it in a ridge in the center. Along the summit of this ridge the roller passed, pressing down the earth and effectually covering the seed. Here then we have the idea of the joint between the covering roller and the forward part of the machine, thus securing an independent action between the two frames, and we have also the idea of the apparatus for raising the seeding frame from the ground, because by pressing on the handles, as on those of the common plow, the operator might lift the runner from the earth.

I may, however, mention here that the witness, Hale, page 430, testifies to the manufacture of the Todd machine in considerable numbers in the State of New Hampshire, where it was invented and used. This brings us to the consideration of those machines whose existence is supported not only by documentary evidence, but by oral proof.

We have, first, what is known as the "Remy & Kelly machine," which contained all the substantial elements of

Brown's machine, with one or two variations which we shall point out. We have, first, the double frame—a frame carrying the roller supporting the machine, and another frame from which the seeding apparatus is suspended. These two frames are independent in their action, the connection between the two being formed by means of a hinge in front, and a lever projecting from the rear frame, passing under the frame in front for the purpose of raising and lowering the latter, and with it the seeding apparatus. A seat was provided for the driver. The seeding teeth were in shape similar to those employed in the ordinary drill. They differ from those used in the machines of complainant in the fact that they are not shaped like a sled runner, and this we shall show was no part of complainant's invention, and therefore he is not entitled to any benefit resulting from their substitution in the Remy & Kelly machine. These teeth were intended to form the furrow, and to serve as tubes through which the seed should be passed from the hopper into the ground. They are shaped, as I have said, like the teeth of the ordinary grain drill, and like the teeth used in corn-planters in the State of Ohio, and other places where the soil is no so heavy as that of Illinois. In the sandy soil of Indiana, where this machine was constructed, these teeth were well adapted to the planting of corn, as the runner-shaped seed tube is to the prairie soil of Illinois. They were raised out of the ground precisely in the same manner as in the Brown machine. The seeding apparatus, when raised, was suspended upon the front of the tongue, and upon the carrying wheels of the rear frame, precisely as in the Brown machine. When the machine was at rest, there were, so to speak, five points of support;

the wheels in the rear, the drill teeth in the middle, and the point of the tongue on the horses' necks at the end. As the operator pressed upon the lever, he raised or removed the two intermediate points, and the points of support became the point of the tongue, and the wheels in the rear.

Another model is introduced by the complainant, which, it is claimed, represents more perfectly the Remy & Kelly machine; and the introduction of this model in a form different from that presented by the defendants, is, of itself, a proof that the complainant's counsel felt the force of the argument to be drawn from this machine if it had the construction which the defendants claim for it. As to the model which we have presented, W. C. Dodge, of Washington, a late examiner in the Patent Office, testifies that it is a copy from the model of Remy & Kelly, deposited in the Patent Office and now on exhibition there; that he had compared it with the original model, and it was in all respects a copy, both in construction and mode of operation. His testimony is not contradicted.

It is obvious, too, upon examining the specification of Remy & Kelly, in connection with the drawings forming part of the specification, that Mr. Bond, who testifies to the correctness of the complainant's model, is mistaken as to the construction of the machine. It is stated in the specification that the journals of the shaft passing through the seeding box are to be found upon the pieces *a*, *a*, whereas Mr. Bond has placed the journal boxes upon the side pieces *c*, *c*. As a result of his construction, neither the seeding aparatus nor his harrow teeth can be raised above the level of the frame of the machine, which would

obviously defeat the purpose of the patentees, whether they desired to rise the harrow or the seeding aparatus. In short, it is obvious that to enable the lever at the rear of the machine to perform any useful function whatever, both the harrow teeth and the seeding apparatus must be lifted from the ground.

We now come to the testimony of the man who made it. Benjamin Remy says: "I made a full-sized working machine in 1849 for planting corn." The plan of said machine is the same plan represented in the drawings of figure 1, appended to his deposition. He attempted to make the machine automatic, for this is the dream of every inventor. When a man sets out to invent a thing, he endeavors to cover all possible contingencies that may arise, and to make a perfect machine at once; and in the present case, having attempted to devise a mode of planting by machinery, Mr. Remy, a master inventor of that day, thought it necessary to couple with it a further device by which the machine was made self-feeding. In this respect, George W. Brown did not differ from Remy. He placed auxiliary wheels on his first machine, for the purpose of making it an automatic planter.

Kirkman put slides on the first machine which he built, and an endless chain on the second. So, too, with Farley and others; all of these men sought, in the first instance, to make automatic machines, and they did make them so that they would have operated well enough if they were to be used only on plain surfaces. When you come to a hilly field, there are two difficulties. In the first place, the wheel, which becomes the wheel of the automatic seeding aparatus, may slip, and the machine does not

register. It plants at the intersection of one row, but does not plant precisely at the intersection of the next. In the next place, in passing over an obstruction or hillock, or into a dead furrow between the rows, the wheels would travel over a greater distance than between the last two rows, and cause the seeding apparatus to work a little too soon. That was and is the difficulty in the way of the practical operation of any automatic machine, and therefore when Remy came to make a full-sized machine in 1849, he discovered this difficulty and took off the band which drove the feeding aparatus, and put in its place little levers, operated by the hand of the planter, who walked by the side of the machine. But when he filed his model in the Patent Office, endeavoring, as every man does, to patent a complete thing, he put the band on, and left the machine as it was at first constructed—automatic.

The next machine in order is the Job Brown machine, and as this also refers to the patent of 1855, I will only remark at this time, that here are the runners, having the sled form, with the seeding tube in the rear. This is the man who made an application for a patent, and afterward withdrew all claim to it on the solicitation of the complainant. He did not withdraw *in favor* of George W. Brown; his paper does not say: "I have ascertained, on inquiry, that George W. Brown is the inventor of my machine," as is sometimes done in cases of interference, but he declares what he was authorized by the act of Congress to do, that he withdrew from the Patent Office all claim to the patent, supposing, as he says, that he was simply giving to the public that which he had no longer a right to claim, because of the lapse of time and the rejection of his

application. This invention of Job Brown was not allowed to sleep. Some fifty machines were made after the same pattern, and farmers have been called to testify in relation to their use. Some of these have been called by the complainant, to prove the machines to be worthless. The character of their testimony is simply that, while they had the machine, it was very good; but that, comparing it with machines of a later date, it was capable of improvement. No man undertakes to say that those machines were inoperative, or that they did not accomplish all that was claimed for them. It is clearly proved, by undisputed testimony, that upon this machine a dropper sat in the rear, while the driver rode in front. In the specific case referred to, the driver was a young girl, eleven or twelve years of age, and the dropper, who sat behind, a young man—the middle bar of the machine extending sufficiently far to the rear to afford room for both of them on the machine.

Abbott's first machine was manufactured in the year 1846, and his second, containing the runner, in 1848. As to the character of the latter there is no controversy; the identical old runner is produced to the Court, and it is conceded that it was such a runner as Brown describes in his reissued patent, No. 1037.

He says, that the runner of Abbott, if put into the George W. Brown machine, would be Brown's runner, and the only way in which that astute gentleman can discriminate between the Abbott runner and the patent "No. 1037," is by linking the Brown runner inseparably to the joint and the two frames shown in the drawings. And then he says, "Inasmuch as I do not find that Abbott's had the joint, I do not find that his runner was the same as

Brown's." This is the logic of the learned counsel of the complainant. Although this runner, if in Brown's machine, would be Brown's runner, and although in patent "No. 1037" Brown claims a runner only, yet, when the runner is in Abbott's machine, instead of Brown's, the expert thinks it becomes something else.

Kirkman's machine was made in the year 1850, and operated in the year 1850, and upon no possible theory of the testimony, as I understand it, can the invention of that machine be brought down later than January, 1851, because on the 19th of January, 1851, the man died who completed the iron runners which were put on the last, or second form of this machine. It will be found, by examining the testimony of the witnesses who assume to have seen this machine later than the time at which Kirkman puts its invention, that, at the time they saw it, it had upon it the band arranged for operating the seed apparatus, which Mr. Kirkman and his son swear was put upon the machine the second season after it was made. During the first season it was operated by a slide. It is said that the year afterward that slide was taken away, and a band put upon the machine with rollers. These witnesses speak of it as having a roller for the purpose of operating the seed apparatus, and they are obviously speaking of the machine as it appeared the year after it was made. This machine of Kirkman's had a rigid frame, supported upon two runners, having in the rear two wheels or rollers. These wheels followed directly after the runners, and served as covering-rollers, but undoubtedly they were put there for another purpose. The tongue of the machine was hinged, so as to give it more play, and between the wheels was

located the stand for the driver. He sat forward of the axle when he wished to force the runners into the ground; and when he wished to throw them out of the ground, he stepped to the rear of the machine upon the platform, and so, by his weight, threw up the front part. The play which permitted this movement was found in the joint in the tongue; the raising of the runners from the ground was therefore effected by the use of the frame as a lever, and by the weight of the driver upon the rear of the frame for the purpose of depressing that lever.

One word as to the date of these several machines. I shall assume this general proposition to be true, that the law of evidence is the same for George W. Brown that it is for Job Brown, John Kirkman, and the others; that the complainant must not sneer at the testimony of Mr. Kirkman or his son, when he assumes to fix the date of his invention, and the use of his machine at a certain time, and then call upon your Honors to regard his own unsupported testimony as to the manufacture of a single model as beyond all dispute, or of so holy and sacred a character that the Court can not possibly question or suspect it. The argument, if I understand it, is somewhat of this nature: that if a man makes a machine and does not go to the Patent Office and secure a monopoly of its use, but makes it, and uses it, and allows his neighbor to make and use it freely, and so gives it to the public, he is to be regarded as a *prima facie* perjurer, or rogue, when he attempts to establish the date of his invention. But if, by the combined ingenuity of lawyers, solicitors, and examiners, he has succeeded in reissuing a patent whereby some fragment of the invention is raised to the dignity of a leading device in the

art to which it belongs, it is to be assumed by the Court that every fragment of testimony, and every fragment of invention in relation to the machine, is wholly beyond question. There is no such rule of law or of evidence. The rule is the same for both parties. If it is necessary for us to prove, beyond controversy, that these machines were made at a certain date, it is equally necessary for the complainant, when he goes back of the application of the patent, to make the same undoubted proof; for the *prima facie* evidence of novelty afforded by the grant of the patent, does not extend beyond the date of the application (*White* v. *Allen*, 2 Fisher, 440; *Wing* v. *Richardson*), nor will it answer for the complainant to show that only one machine was made by Kirkman or Abbot, for the evidence of George W. Brown himself is that under his patent of 1853, he has manufactured but a single machine. That machine is as much of an abortion, and has as little resemblance to the modern corn planter as any one of the prior machines; indeed, there is less resemblance to the machine of the present day than is found in those of Kirkman, Abbott, and Job Brown. I omit, for the present, any discussion upon the Moffit machine, but will refer to it hereafter.

Having thus reviewed the state of the art, the question arises what was the rank of George W. Brown among the inventors of seed-planting machines? Did he discover that corn-planting could be done by machinery? Undoubtedly not. That is not his invention. He does not stand, therefore, in the rank of those inventors who showed how you could sow by machinery instead of by hand, or reap by machinery instead of by hand. Seed-planting by

mechanism was much older than George W. Brown. What did he invent? Did he invent the frame of the machine; —a machine composed of framework merely? No; other machines are composed of framework. Any one or all of these prior machines are composed of framework, unless it be in the technical sense in which Brown uses that term in his patent. Those who made them built up upon the framework of the machines an apparatus for seeding above, and for furrowing and depositing the seed below. So far as a machine composed of a sled is an invention, Job Brown was evidently in advance of George W. Brown, for his machine was all sled. He did not depend upon rollers for the support of any portion of his machine. Was George W. Brown the inventor of runners for corn-planters having an upward inclined edge, gradually widening at the bottom toward the rear, so as to open a furrow, and containing a passage-way or tube for depositing the seed? No; the runner of Abbott is confessedly older than Brown's. Kirkman's runner is of the same character; Todd's substantially the same, and so really like his, that it was once rejected upon the Todd patent at the Patent Office. Was Brown the inventor of wheels upon these machines? He was not, for from the very first—from the very beginning of seed-planters—they have been carried on wheels or rollers, and it seems to have been his desire to avoid wheels, for he declares that his machine is supported principally upon runners as a sled, as distinguished from those machines which were borne upon spoked wheels, resembled a carriage rather than a sled in their structure. Todd, Abbott, and Kirkman had wheels, and therefore, whether the rollers of Brown be considered as supporting wheels or

covering wheels, he was anticipated by others. There was a covering-wheel in Todd's machine of 1843; there was a covering-wheel in Kirkman's machine of 1850.

Nor was he the inventor broadly of two frames, one supported on runners, and the other on wheels; for this Todd machine is composed of two frames, the forward one supported upon the runner, and the rear frame carrying a covering-wheel. Remy & Kelly's is, in like manner, composed of two frames. Nor was he the inventor of an independent action between two joint frames, permitting one frame to rise and fall independently of the other, for that independent action is found in the Todd machine, and in the machine of Remy & Kelly. The seat for the dropper is found on Job Brown's machine, and on Finn's, and that for the driver was found upon nearly all the prior machines —upon the Remy & Kelly machine, upon that of Kirkman, and upon the machine of Job Brown. Indeed, upon most of them this driver's seat was a seat provided especially for his accommodation. In one of these machines—that of Farley—the whole machine seems to have been constructed with reference to an extensive platform, upon which the driver was wont to disport himself almost without limit, and upon which he was to walk back and forth, for the purpose of depressing or raising the runners. Nor was he the inventor of the idea of so attaching the seeding runners of the machine as that they could be thrown out of the ground upon turning the machine, for that is found in Remy & Kelly, and Kirkman, and performed also in Farley's machine, with driver riding, and so described in the application filed in the Patent Office, as intended by the inventor for that purpose, and is obviously constructed

with that view; for no man would make a broad platform of that size and kind for the driver, unless it was intended he should maneuver upon it to some useful purpose; the only purpose perceptible being that of pressing the runners into the ground or throwing them out; and this machine of Farley's is earlier than Brown's of 1855. Nor could he claim to be the inventor of a lever for the purpose of raising the seeding apparatus from the ground, for the lever, in various forms, is found in all the seed-drills to which reference has been made. It is found in the Remy & Kelly machine, placed at the rear, for the purpose of being operated by the man who walks or rides. It is also found in the Kirkman machine, the rear frame being so employed with the driver riding upon it.

Now, not being the inventor of these single devices, what was left for him? He might improve on the devices themselves, or he might put them into new relations or combinations, to produce new and useful results. What would be his rank as an inventor in either case? He could no longer say, "I am a pioneer in this art;" if he did, the answer would be: "You have not discovered the art itself, you have not invented the first machine to accomplish the purpose, nor are you the inventor of a single device in the mechanism which you employed. The runners are not yours, the covering rollers are not yours, the frame and the joint are not yours, the seats are not yours, nor is the use of the lever to raise or lower the seeding apparatus. What have you invented?"

The public have some rights in this matter. They have a right to know what is, and what is not claimed by Mr. Brown as his invention. They have a right to know

whether his patent is intended to claim a runner, or a runner in combination with a joint, or a runner in combination with a frame, or a runner in combination with an entire and specific machine. For, if no claim is made to the runner alone, some man may choose to put it upon a machine which has a rigid frame. If Mr. Brown had found such a person using his runner alone, is it not probable he would have called his attention to patent "No. 1037," and have been more careful not to say anything about the joint of the frame as a latent element of the combination, until it became necessary to do so, when this man had hunted up the runner and was about to divide the patent? The inventions of Mr. Brown, if there were any, were mere combinations, and as such, became subject to the rule laid down in the case of *Rees* v. *Gould*, lately decided by this Court.

In the natural sciences we subdivide classes into orders, orders into genera, genera into species, species into varieties. If a man is the inventor of a class, he is entitled to include in his patent all the orders, and genera, and species that may fall under it. But if he be the inventor of a species only, he can not lay claim to other species derived from the common genus which is the property of another man. His claim must be limited to the subdivisions of his particular species, and this is substantially what this Court said in *McCormick* v. *Manny*, 21 Howard.

That case is an instructive one, for it has many features in common with the one at bar. Brown, like McCormick, has come into the field of invention at the eleventh hour, and when seed-planting machines and corn-planting machines had been already invented and supplied with runners, covering

rollers, and frames, and has united these parts in a peculiar form, which form was in itself imperfect and valueless, for he himself has made but a single machine like the patent of 1853, from the day of his pretended invention to the present hour.

He now claims to be the inventor of the whole class, and wants to sweep into his class men, women, horses, machines, and everything that is needed to operate a successful corn planter. What then did he invent? I answer, "*This machine.*" But here let me call the attention of the Court to the original specification, that we may see how Mr. Brown defined his invention at the time it was made.

The original specification describes the machine of Brown by reference to the drawings, naming each part by letter, giving a short description of its function, and then passing by it to some other portion of the machine. There is no description of any particular purpose to be served by the invention, and so far as the specification gives any hint of it, it was intended by Mr. Brown to be what its title expressed, "an improvement in seed-planters," by the addition of some new device, or the modification of some old device in the existing machine.

The original machine of Brown resembled very much the one constructed by Job Brown with three runners, with one of the runners removed. If the small covering rollers in the rear be taken away, we shall have the runners supporting the frame and the seeding device, and resembling in its general structure a sled rather than a carriage. This is the machine, and it was capable of planting without the addition of other devices. It consisted of a single frame, supported upon runners in the form of a sled, for at that

time the idea of two frames had not entered the mind of Mr. Brown. This child of later days owes its existence to the manipulation of skillful experts and learned counsel. In the rear of this machine he placed a couple of covering rollers, one behind each runner, and attached thereto by two side pieces, in substantially the same way as the runner of the Todd machine. Each runner was hung separately, *and was entirely independent of the runner on the opposite side;* and the mode in which it was hung, and the function which it performed, and its mode of operation in performing that function, were the same as the roller in the Todd machine. For the purpose of raising and lowering the machine, it occurred to Mr. Brown to place a lever over the top of each of the rollers, one end of it under the hind part of the frame of the machine, the other end projecting backward in the rear of the roller, so that an attendant, walking behind the machine, seizing the rear end of the lever and using the roller as a fulcrum, might lift the machine in front from the ground. As there were two of these levers, one over each roller, he connected them by a bar or handle for the purpose of enabling the same man to operate both; so this machine consisted of a frame, resting upon two runners like a sled, having two small covering rollers following the runners, and a lever, or pair of levers, connected by a handle passing over the top of the rollers, which operated as a fulcrum for the purpose of tilting the rear part of the machine, or of raising the runners and seeding apparatus from the ground. The rollers were necessarily very small, because the levers projected entirely over them, and were still within convenient reach of the operator walking upon the ground behind the ma-

chine, and therefore Mr. Brown was justified in calling his machine a sled, as distinguished from a carriage.

The pair of levers that are thus connected by a bar or tongue now expand into a rear frame, jointed to the forward frame, and it is proposed to make them the means of sweeping into the net of Mr. Brown all corn-planting machines composed of double frames, however constructed, and although varying so far from his machine that the rear frame is virtually the main frame of the machine, a structure raised on wheels, and carrying much of the machinery of the planter. Mr. Brown declared his original invention to consist in "new and useful improvements in seed planters," recognizing the existence of the class "for planting corn *and small grains*," which inventions he says he has "incorporated in the machine called 'The Illinois Seed Planter.'" When, at the close of his specification, he comes to sum up these improvements, in accordance with the provision of the "act of 1836," which requires him particularly to specify and point out, he declares, under oath, that the result of his thought, experiment, and observation has been the invention of the following devices:

"*Claim.*—The oscillating horizontal wheels or distributers in the bottom of the hoppers, having slots and holes of various sizes, in combination with stationary caps and pins for the discharge of different kinds and quantities of seeds. Also, the arrangement of the covering rollers, mounted as described, and performing the purpose of covering the seed, elevating the cutters in turning around, and adjusting them to different depths."

The first of these claims relates to an apparatus in the hoppers for the purpose of discharging the "seed of dif-

ferent kinds" (no exclusive reference to corn here) "and quantities." The second claim is for the arrangement of the covering rollers in their double function of covering the seed and as fulcra for the levers in raising the cutters from the ground. Of these claims, the first has passed away and left no trace behind, and there is no claim for covering rollers as a new improvement in any of the reissues, so that in effect the inventions which Mr. Brown supposed he had made in 1853, are now discovered to have been no inventions at all, but that at that time, by "inadvertence, accident, or mistake," he omitted to claim what he did invent, and he claimed what he did not. His invention has now been expanded into five patents, and these claims, all of which it would seem he had intended to patent in 1853, when he started for the Patent Office, he, in some mysterious way, forgot on his way to Washington.

In 1858, Mr. Brown applied for a reissue. This was five years after the granting of the original patent, and it may be supposed that whatever "inadvertence, accident, or mistake," had prevented him from securing his entire invention of 1853, had been discovered, so that he could not, at this time, fail to demand, and receive, a patent which should be as broad as his invention. What did he demand, and what did he receive? He declares in his new specification that "the nature of my invention relates to the construction of a shoe for opening and holding open the furrows." He then goes on to say, this shoe may be used in connection with any seed machine. Then, after declaring that he describes only those parts of the machine which he claimed, he claims as follows:

"Having thus fully described the nature and object of

my invention, I would state, that I am aware a rotary coulter has been used in opening a furrow for seed to be dropped into from a seeding machine, but as the tube is necessarily placed behind such a coulter, the earth will run into and fill up the furrow between the coulter and the tube before the seed are dropped into it, I do not therefore claim any such contrivance. But what I do claim as new, and desire to secure by letters patent, is a *shoe* for opening a furrow which has a *convex* edge in front, and a seeding tube in its rear end, so that it may cut through any grass, open out a furrow, and hold it open until the seeds are deposited in it, substantially as herein set forth.

"And I claim, *in combination* with a shoe, the joint or hinge in the machine, by which means said shoe may be raised or lowered, to admit of turning around, or for entering the ground, substantially as described."

The Patent Office rejected his claims, and referred him to Job Brown for his shoe, and to Henry Todd for his joint, for in the Todd we find the shoe in connection with the joint. He therefore struck out the second claim, obtains from Job Brown his withdrawal, and the patent was issued with only one claim, which was for the shoe alone, and the first above set forth.

The Court will notice that this was not a demand on the part of Mr. Brown for other inventions, which he was unable to obtain because of the obstinacy or the stupidity of the examiners at the Patent Office, but the only thing for which he asked a patent was for the shoe, and the shoe followed by the jointed roller. Now, having sought in this specification and claim, two inventions; first of the shoe as applied to a single machine, and secondly of the shoe in

connection with the joint; and having, as we have seen, abandoned the latter claim, and accepted the former, suppose he had brought suit on this patent as issued, and upon the trial of that action, this prior shoe of Abbott—resembling, as Mr. Bond says, the shoe of Brown in its form and construction, so that, if it were put into the Brown machine, it could not be distinguished from the shoe which Brown himself describes—suppose that this shoe had been produced, and its prior existence proven, would he be permitted to save his patent by combining with the shoe the roller and the joint, when he had stricken that claim from his application? Would he not be estopped from asserting in a court of justice a claim which he had abandoned upon the record in the Patent Office?

We have seen that the inventions of 1853, one of which was for "oscillating plates," and the other for "covering rollers," were abandoned in 1858, and the inventions of Mr. Brown, after five years deliberation, were concentrated in a single claim for the shoe, in the shape of a sled runner. But in the year 1860 it occurred to him that a great "accident" had happened to him in 1853, and that the inventions upon which he had expended so much time and thought, and which, of course, he had meant to make—for the argument of his counsel will not allow us to think so meanly of Mr. Brown as to suppose he was the unconscious inventor of these great improvements—had escaped from his memory when drafting his original patent, in his interview with Dr. Gale, the examiner, at the Patent Office, when his original claims were adjusted, and in his subsequent reissue of 1858, made after five years reflection.

We have heard much of the seductions of the national

capital. From the alarming increase of reissued patents with expanded claims in no way resembling the claims of the original patent, upon which they are founded, it would really seem as if the inventors of our country were more susceptible to the alluring influences which surround the seat of government, than any other class of our citizens. Such total loss of memory, such wonderful accidents, such remarkable inadvertence, and such unaccountable mistakes, have surely never occurred in any other department of government, or of business. The Patent Office, the solicitors, and the inventors of the country, would really seem to have received a new inspiration in the year 1860, in regard to the character of the inventions previously obtained, for, by reference to the Patent Office Reports, the Court will see that the number of reissues increases in extraordinary proportions. This is the year in which the hat-body reissues were granted, and the ten reissues of McCormick; and the forgetful inventors, who had obtained patents at various times during the fourteen preceding years, seem to have awakened simultaneously to the knowledge of the wonderful inventions which they had originally made, but which, from some unaccountable cause, they had omitted to claim. Such proceedings as these have made this section, permitting reissues, a curse to the country. The original intention of the law-makers was wise and beneficent. They meant that an inventor should have the privilege of correcting an imperfect description of his invention, which imperfection had arisen from his own ignorance, want of familiarity with the use of language, or the mistakes of solicitors to whom he had failed to clearly communicate his ideas;—to correct errors where words had crept in, or had

been left out, that materially altered the meaning of the patentee;—where, by accident, wrong words had been employed, terms had been misemployed, and many other causes of a similar nature. It is just that the inventor should be permitted to describe clearly the invention which he has really made, and really means to patent; that within a reasonable time he should return to the Patent Office, and ask that such mistakes shall be corrected as he can show to have been inadvertently made.

The patentee certainly knows what he has invented. It is not conceivable that he should describe an invention relating to one part of a machine, and years afterward discover that that was not the invention which he supposed he was making, but that, in reality, it applies to another and entirely different portion of the machine. The language of the 13th section seems to guard the privilege with care. The causes of surrender and reissue are stated to be, first, where, by reason of an insufficient and defective description, the invention has been imperfectly described, and, secondly, where he has claimed more than subsequent information shows him to have really invented. In such cases he was to be permitted to amend the imperfect description, or to restrict or expand the claim. When an inventor makes his original application for letters patent, he is not apt to be too modest in his claims. Developing his idea in secret, and sometimes without much knowledge of what is going on in the rest of the world, he supposes himself to have invented the entire machine, and his solicitor is instructed to draw very broad claims.

When his specification comes to be compared with the portfolio of drawings in the Patent Office, and with for-

eign patents, and with the printed publications, his claims are usually restricted, so that the progress of an application for letters patent is usually from broad claims down to narrow ones. But Mr. Brown made no broad claims upon his machine. In his original patent he did not claim the runners, or any part of the machine except the oscillating plates and the covering rollers. In 1858 he threw those away, and sought to claim only the runners, but in 1860 he discovered that his invention was for an entirely different thing, to wit: two jointed frames, of which he did not speak in 1853 and 1858. The enormity of this practice may be seen in some of its results: that where manufacturers are honestly endeavoring to steer clear of everybody's rights, honestly endeavoring to infringe on no existing patent, where they go to the Patent Office, and employ skilled agents and counsel to examine into the state of the art, for the purpose of satisfying themselves that they may safely carry on their business, and they are informed that they are not infringing upon anything that belongs to any patentee, as in the present case, they are not infringing on Mr. Brown's patent, because his patent of 1858 covered nothing but the runners, and that claim was worthless because of the prior use of similar runners by Abbott, Job Brown, and others; and then, after investing capital in the manufacture of machines, establishing factories, and setting in motion a system of agencies, and furnishing the machine with improvements and devices, upon which they have secured patents, and which greatly enhance the value of the machine, some prior patentee slips into the Patent Office, surrenders his patent for some old abortion, of which he has never constructed a single specimen in his

lifetime, and seeks to reissue it, because, forsooth, in some part of the model, which is rudely put together, there is the faint shadow of features which have since become important to the machine through the improvements of other men.

In his reissue he assumes to have laid the foundation for these improvements, by pointing to the embryo in his original, and from which he claims they have sprung, although at the time of making his original invention and application, he had made no claim upon that part of his machine, nor had he, nor had any one else, supposed it to be of the slightest value or importance.

I submit to the Court whether patents obtained under such circumstances ought not to be strictly construed. What application has the doctrine of liberal construction to a man who has made a third set of reissues, correcting, and recorrecting his original inventions, and blown the little bladder of his original thought until it has become a balloon large enough to enable him to sail over the whole country. In later days, judges, who, at first, when this was a little matter, and when the reissue was resorted to for a legitimate purpose, were disposed to encourage the right of the inventor to correct his specification,—seeing how this privilege has been perverted, and how the whole land is being cursed by it, so that almost every patent that comes into a court of justice is a reissued patent, have become more and more strict in holding the inventor to a literal description of his invention, and more strict in requiring him to make proof that he has really invented that which he seeks to claim.

Said this Court, in *Burr* v. *Duryee*, 1 Wall. 531:

"The surrender of valid patents, and the granting of reissued patents, with expanded or equivocal claims, where the original was clearly neither 'inoperative nor invalid,' and whose specification is neither 'defective nor insufficient,' is a great abuse of the privilege granted by the statute, and productive of great injury to the public. This privilege was not given to the patentee or his assignee in order that the patent may be rendered more elastic or expensive, and therefore more '*available*' for the suppression of all other inventions."

The same views were, in substance, repeated in the late case of *Carleton* v. *Bokee*, decided at the last term of this Court.

Mr. Brown was well informed on this subject. In September, 1860, he was sued by Case, under circumstances almost precisely the same as those under which he now claims damages from the appellees. Case had described a machine in his original patent having a dropping apparatus, in the operation of which he made use of a certain weighted lever. He afterward surrendered his patent, omitting from the claim the weighted lever, and claiming, so far as he could, a mere function or result, using for this purpose the phrase, "so combined," which is the very language which Mr. Brown afterward found convenient to apply. Case's claim was for so combining the lever with the valves that he could obtain—what? Why, the result of *double dropping*.

When his claim came before Judge Drummond, the learned judge held, that although the weighted lever was not mentioned in the claim, yet, as it was found in the

specification, and was necessary to the successful operation of the device claimed, it formed an essential part of the invention of the patentee, and could not be discarded. When this came before the Supreme Court for review, they say (*Case* v. *Brown*, 2 Wall. 328):

"We have had occasion to remark, in a late case, on this new art of expanding patents for machines into patents 'for a mode of operation,' a function, a principle, an effect, or result, so that by an equivocal use of the term equivalent, a patentee of an improved machine may suppress all further improvements."

We come now to the consideration of the reissues. Both sets of the reissues involved in this controversy were patented under the provision of the fifth section of the act of 1837, which provides that whenever a patent shall be returned for correction and reissue, under the thirteenth section of the act to which this is additional (that is the act of 1836), and the patentee shall desire several patents to be issued for *distinct and separate parts of the thing patented*, "he shall first pay," etc.

Having obtained five patents in return for each of his originals, we are not only warranted in supposing, but really compelled to believe, that each patent is for a distinct and separate part of the invention. If they were not, the commissioner had no authority to issue them. As they stand, they are distinct articles of property, and they may be sold separately, and they may separately form a subject of application for reissue or extension. It is impossible, therefore, that each patent can be so construed as to make it for the same invention, the only variation being in the form of stating such invention. I assume, therefore, these

patents are to be so construed as to show five distinct and separate inventions. The first patent is No. 1036. The art of reissue, which had come to such perfect fruition even in 1860, is shown perhaps in its full fruition in the progress of this patent. That which Mr. Brown in 1853 was content to describe by saying, "A represents one part of the machine, and B another," and so on all through the alphabet, and through the machine, he could not set forth in 1860 without an oration upon the subject of corn-planting machines, beginning, "corn planting is at that season of the year when the ground is moist and soft," and so on throughout the major part of the specification. He then describes this machine, for he could do nothing else. The law of reissue, even under the present liberal construction, does not permit the patentee to bring in another and different machine, and therefore in each of the five patents we must expect to find the whole, or some portion of this machine, similar in the specification and elaborate in the drawings, for that was the only thing upon which Mr. Brown could lay the foundation of one or a dozen reissues. It was, undoubtedly, competent for him under the law as was understood at the Patent Office, to describe the entire machine in each specification, and then at the close of each to specify in his claim the particular feature which formed the subject-matter of that patent as distinguished from the others. Here in his patent, No. 1036, he says: "The nature of the invention (that is, of the invention which this reissue is intended to cover,) is a machine constructed principally of frame-work supported in front by runners, and in the rear by wheels." At the close of his description he says, "by a machine composed principally of frame-work, I mean a

machine without gearing, without spoke wheels, and other expensive fixtures, and resembling a drag or sled more than it does a carriage or wagon in its general construction." This form of expression is frequently resorted to, when the patentee desires to define the technical meaning which he wishes to give to a particular phrase wherever it may occur in his specification or claims. The phrase, "machine composed mainly of frame-work," obviously has no well defined meaning. It was competent to say, "when I used that expression, I wished it to be understood as indicating such and such things," and this definition should not be lost sight of in any attempted construction of the specification. In effect, the patentee, having given a definition to this phrase, is estopped from asserting that the phrase is to be understood in any different sense from that which he has defined. Patent No. 1036, therefore, was intended to cover a machine, which in outline resembled a sled, whose covering rollers were mere "rollers," as distinguished from wheels performing the double function of coverers of the seed and fulcra for the levers.

The difference between us and the complainant in the construction of this patent is, that he rejects the words "without spoke wheels" as immaterial, and upon his right to do this, I refer the Court to the cases of *Vance* v. *Campbell*, 1 Black, 427, and *Byam* v. *Farr et al.*, 1 Curtis; and in the next place, he insists that "a machine composed principally of frame-work" means just such a machine as is described by him in all its essential particulars, involving the joint between the two frames as an essential element of the combination. Our construction makes it a combination of three elements—a frame, runners, and rollers.

Their construction makes it a combination of five elements —two frames, a joint between them, runners, and rollers.

We come now to patent No. 1037. This patent opens as usual with a speech. Then Mr. Brown defines the special invention intended to be claimed in this reissue, and this he declares to be a shoe, or rather the construction of a shoe, or runner, for seed-planting machines of a peculiar form. As we understand this patent, it is for a runner, and nothing else. As the complainant understands it, the runner will not climb up and over intervening obstacles if this frame to which it is attached be not jointed to the frame which carries the rollers, and, therefore, in order that the runner should perform its functions, he declares it must of necessity be associated with, first, the frame which it supports; second, with a frame in the rear connected with the first frame; by, third, a joint; and which frame is supported, in the fourth place, by runners. Here, then, we have, as before in No. 1036, five elements, consisting of runners, rollers, two frames, and a joint.

The construction sought by complainant is precisely that which was declared by the Supreme Court to be erroneous in *McCormick* v. *Seymour*, 19 How. 105. The Court, in that case, say:

"In the course of the trial, a question arose upon the true construction of the second claim in the patent, which is as follows: 'I claim the reversed angle of the teeth of the blade in manner described.' This claim was not one of the issues in controversy, as no allegation of infringement was set forth in the declaration. But it was insisted, on the part of the defendant, that the claim or improvement was not new, but had before been discovered and in public

use; and that under the ninth section of the act of Congress passed March 3, 1837, the plaintiff was not entitled to recover costs for want of a disclaimer of the claim before suit brought; and that if he had unreasonably neglected or delayed making the disclaimer, he was not entitled to recover at all in the case.

"The ground upon which the defendant insisted this claim was not new, was, that it claimed simply the reversed angle of the teeth of the blade or cutters. The court below were of opinion, that, reading the claim with reference to the specification in which the instrument was described, it was intended to claim the reversed angle of the teeth, in connection with the spear-shaped fingers, arranged for the purpose of securing the grain in the operation of the cutting—the novelty of which was not denied.

"The majority of the court are of opinion that this construction of the claim can not be maintained, and that it is simply for the reversed angle of the cutters; and that there is error, therefore, in the judgment, in allowing the plaintiff costs."

The next patent, No. 1038, declares that "the nature of this part of my invention consists in combining with a seed-planting machine, constructed principally of framework, and with not less than two runners and two wheels, *a hinged joint*," etc. Here, obviously, we find the five elements. Here are, by the assertion of the patentees, runners, rollers, two frames, and a connecting joint. As to the number of the elements claimed in this patent, the complainant and ourselves would hardly disagree;—the controversy between us would be as to the character of those elements.

The truth is, as it seems to me, Mr. Brown meant to claim, in his first patent, a frame, supported upon runners, followed by two covering wheels, irrespective of any joint connection. He meant, as he says in his deposition, to include machines like that of Kirkman, as much as those of these defendants. For, as he says, he supposes Kirkman was infringing on his patent. In the next patent, he meant to claim the runner, which he had made the sole claim under this patent in 1858, but which he now discovers is the same as the runner manufactured by Abbott. In the three patents he meant to claim the joint. He says in effect, "If you drive me away from the rigid machine, or prove that I am not entitled to the runner alone, I attack you with another combination, containing a greater number of elements, and therefore more difficult to anticipate. Into this combination I have put the joint."

In patent No. 1039, we find two claims, the first of which in its structure is a fair type of all the claims of the reissues of the patent of 1855. It is a claim, not for mechanism, but for a result, and, as we insist, is not for a patentable subject-matter, and the patent itself is void. The patentee claims "the mounting of said attendant upon the machine in such a position that he may readily see the previously made marks upon the ground, and operate the dropping mechanism to conform thereto, substantially as herein set forth." A claim for the mounting of an attendant in such a position that he may accomplish a given result, is a claim for the result itself. It is, in effect, as if the patentee had claimed as follows: "I claim any mode of mounting an attendant on a machine, whereby he may readily see the previously made marks on the ground," etc.,

for, obviously, the mounting of the attendant in such a position that he may *see the marks*, is equivalent to any mounting of the attendant by which he may see, or the mounting of him in any position in which he may see. The courts have already considered claims of a similar structure, and have declared them void.

In the case of *Sickles* v. *The Falls Company*, 2 Fish. 202, the claim was for "imparting a co-existing movement to two reciprocating catch-pieces, in the operation of trip cut-off valves." Judge Nelson says: "The claim, in terms, is for an effect or function, and therefore not patentable."

In *Sangster* v. *Miller*, 2 Fish. 563, the claim was for "constructing and arranging the spring catches to *cause* the attachment of the lamp to the lantern by the operation of pressing the lantern down on the spring catches." Judge Nelson said: "The patentees suppose they have avoided the objection, by changing the form of the claim. We think they have fallen into the error that the claim itself, as set forth in the reissue, is not the subject of a patent, but a mere result from the arrangement and combination of the parts."

In *Carr* v. *Rice*, 1 Fish. 325, the claim was for "the *use* of the revolving, distributing, scouring and blowing cylinder or beaters, and fans, by which the material is distributed, scoured, and the flour blown through the meshes of the bolting cloth." Judge Nelson declares that "this claim is a claim to a legal result, and not patentable."

In *Kirby* v. *Beardsley*, 3 Fish. 265, Judge Shipman says, "that mere changes in the form of the raker's seat to enable it to face the falling grain, are simple, well-known, and the common property of the race, and that

moving a slat on a center rigidly so that its front may be presented at any angle most convenient to the raker, is no more patentable than revolving the seat-board of a piano stool, or changing the position of a common chair on the floor of a parlor;" . . . . . "also that the change necessary to present the front of a seat at different angles would not change the ordinary mode of a rigid fastening, and such a change would involve no invention." See *O'Reilly* v. *Morse*, 15 Howard, 62.

Nor is this patent aided by construing it to be a combination between the machine and the man. For the claim, it will be observed, is not for any *particular form* of seat, but for mounting the *man* on the machine so that the *man* may perform a certain function. It will hardly be seriously claimed that *man* becomes patentable in every new position which he occupies, or that he can form a proper element of a combination with every seat upon which he choose to sit down.

In *Morton* v. *The New York Eye Infirmary*, 2 Fish. 320, before Judges Nelson and Shipman, the Court say, "Neither the natural functions of the animal upon which, or through which, it may be designed to operate, nor any useful purpose to which it may be applied, can form any essential parts of the patentable combination, however they may illustrate and establish its usefulness."

In *Yale and the Greenleaf Manuf. Co.* v. *North*, 3 Fish. 287, Judge Shipman says, "It is insisted that this claim purports to be for a combination for preventing the picking of a lock with the *fact*, *or act*, *or means* of setting tumblers. If the claim were to receive this construction, it would fail, for it would be an absurdity. The manner of

setting the tumblers can form no part of a combination. A combination in mechanism must consist of distinct mechanical parts," etc,

This patent, No. 1039, contains a second claim for a lever, or its equivalent, by which a driver or second attendant may raise or lower that part of the framework that carries the attendant and the seeding device. This lever is precisely that part of the machine which constitutes, in some of the other divisions of the reissue, the rear frame; for the Court will remember that what is now called the rear frame, was in reality nothing but the two levers extending over the rollers, and united in the rear by a connecting bar or handle. This part of the machine is therefore, or was, claimed as a frame. It is now claimed as a lever. The truth is, it never was anything but a lever. This lever, operating in this way to produce this result, was properly the invention of George W. Brown, and might fairly have been included in his original patent. We do not dispute his right to the claim for such a lever as he describes; but when it is sought, under the claim for this simple device, to make all levers infringements whereby a seeding device, either of corn-planting or seed-planting machines is raised from the ground, we answer, that this broad claim has been anticipated by previous devices. The Court have seen that in the seed drill there was always some arrangement for raising or lowering the seeding teeth. In Kirkman's machine this purpose was effected by throwing the weight of the driver upon the rear part of the machine,—the framework, operating as a lever, and the wheels as fulcra, to raise the runners and the forward part of the machine from the ground. This was the case with

the machine of Job Brown, and, in short, with all the previous machines, except that of Remy & Kelly, where an independent lever was used, connecting a jointed frame for the purpose of raising the forward frame, containing the seeding apparatus, entirely from the ground. Construed to cover all levers, or such levers as are used by the defendants, this patent is void. Construed to cover the particular lever described by Brown in his patent of 1853, the defendants do not infringe; for, as the Court will notice, in neither of them is the forward part of the machine raised by an attendant walking in the rear of the machine, and pressing upon a lever which projects to the rear for that purpose. In the Selby machine the rear frames are not used as levers, but a peculiar device or lever is erected on the main frame, and although Bergen's rear frame acts as a lever, it does so in a substantially different manner.

When we come to the next series of patents reissued upon the patent of 1855, we find that he claims this same function performed by the driver, seated upon the machine. By obtaining two patents—one for a mode of raising the seeding devices by an operator walking on the ground, and another for the same mode of operating by a driver sitting upon the machine—he declares, substantially, that the two modes of operation are not substantially the same, but properly constitute different patents. He was therefore estopped from saying that the defendants infringed this patent, since drivers ride upon machines made by all of them, and no levers are operated by an attendant upon the ground.

We come now to the patent of 1855. What was left for Mr. Brown to invent? We have seen that in the machines of 1853 there was a framework supported on

runners, that these runners were followed by rollers which operated as covering rollers, and served as fulcra for two levers by which the forward part of the machine was raised. These levers, and their connecting rod, he chooses in his reissues to call a second or rear frame, jointed to the forward frame, admitting of a limited motion. I say a limited motion, because by bending this machine it will be seen that the motion between the two parts is arrested by the parts coming in contact with each other to such an extent that, in practice, a machine constructed according to this model would be substantially rigid.

In 1855, Mr. Brown no longer claimed runners, rollers, frame, or joint. He could not claim the raising or lowering of one portion of the frame by the hand of the operator applied to the other portion—nor could he claim, in broad terms, the limitation of the motion. Neither machine permitted an independent motion between the frames. The movement of each was exceedingly limited in its scope, when compared with the Selby machine. What did he do in 1855 which he had not already done in 1853? He did nothing, as it seems to me, that involved invention, or that could properly be the subject of letters patent. At that time there was not an agricultural implement on the farm of any size, that was not provided with a seat for the driver;—upon reaping machines, seed drills, horse-rakes, the drivers rode. Seeing Mr. Brown's corn-planting machine in the field, and the driver toiling behind, some one says: "Brown, why do n't your boy jump up on the machine and drive there?" The boy jumps up, and you have the invention of 1855. In order that he might not fall off again, Mr. Brown provided a long board resembling a saddle, upon

which he could sit and slide backward, or, as one of the witnesses expresses it, "*pitch* backward and forward." When he "pitches" to the forward extremity of his board, he is over the axle, and presses the heel of the runner into the ground—*in theory*. In practice, his weight is thrown directly on the axle, and upon the driving wheels, and does not affect the runners at all. When he "pitches" back to the rear end of his board, his weight is intended to raise the runners from the ground, precisely as his weight in the machine of 1853 was intended to accomplish the same purpose, precisely as the driver in the Kirkman machine, in the Farley machine, in the Job Brown machine, and others, raised the forward part of those machines from the ground.

I say that this was the theory of the machine. In practice, the weight of the driver was insufficient to do this, as can be easily tested by actual experiment upon the full size "blue machine" produced in Court. The range of motion was, at any rate, very limited, both in the machine of 1853 and in the machine of 1855, because the frames were so closely connected with each other, and so provided with "locks, stops, or blocks," that one could move but a short distance without striking against the other, and making the joint rigid. I refer to the patent of 1853 in this connection, because Mr. Brown could not patent in 1855 what he had already patented in 1853, and his own model of 1853 is as much anticipation of his invention of 1855 as if it had been made by another. I say, therefore, that there was no invention in the patent of 1855 over and above what was shown in the patent of 1853, except the driver's seat, and

the device for dropping the corn, which forms the subject of the last reissue of this series.

The entire batch of reissues of the patent of 1855 are open to the objection which was made to the first claim of reissue No. 1,039, that they claimed functions or results, or modes of operation, instead of devices or means by which the results are obtained.

The first claim of reissue No. 1091 is for placing the driver, and person who operates the seed slides or valves, upon the machine in such a position "as that each may attend to his particular duty without interfering with that of the other." What mechanism is claimed here? In combination with the machine, the placing of two persons on it in such a position as that each may attend to his duty. If this is not a claim for a result, or effect, or does not include, or is not intended to include, all modes of locating two men upon seed-planting machines, which will enable them to discharge their duties, it is difficult to understand the force of words.

The second claim of the same patent is for a combination of a seat with a seed-planting machine, or, for "so locating of said seats or stands that the weight of one of the persons may be used to counterbalance, or overbalance, the weight of the other." This, again, is a claim for a result, or for a location by which the result may be accomplished. It is an answer to this patent to say, first, that Mr. Brown was not the first person to locate two persons upon seed-planting machines. The Job Brown machine, which was undoubtedly made and used before Brown's machine of 1855 was invented, carried both the dropper and the driver, who occupied such positions that

neither interfered with the other. And, second, the function which it is declared that these persons performed, of "counterbalancing" or "overbalancing" one another, can not be performed by the machine. The complainant has produced a model and a full-sized machine constructed under this patent. But it will be seen, by experiment with either, that it is impossible for the driver, by throwing himself upon the rear extremity of his seat, to raise the front of the machine from the ground while the dropper sits upon it. The testimony on both sides is overwhelming, that when the seeding apparatus of the machine is raised, the dropper gets off, and this is the case not only with the Brown machine, but with all the machines constructed by the defendants, so that neither the machine of the complainant nor of the defendants performs the functions set forth in this patent, by any means. It can hardly be material to examine whether the means are, or are not, the same. That they are not the same, will appear more evident from an examination of the next reissue.

Reissue No. 1092 describes the same machine, and claims, as an improvement of the invention, the usual combination of a seed-planting machine operated by hand, "with the locating of the driver's seat in such a relation to a line drawn through the centers of the wheels, as that the occupant of the seat may, by moving himself or throwing his weight forward or backward on his seat," etc., "force the seeding apparatus into or raise it from the ground." This is a claim, as I understand it, for the peculiar seat of the complainant, to wit, the long saddle upon which the driver may straddle and slide from front to rear as occasion may require. This seat as a new device might be the subject of

letters patent. It will be noticed that what has commonly been called "seat" or "stand" in the other reissues of this patent theoretically, and the same invention, is now called "seat" only, and such a seat as will render it unnecessary for the driver to rise, walk, or stand over or near the seed devices, so that in two inventions derived from the same machine, and proceeding from one common original patent, the complainant finds it convenient to describe the driver as sitting, or standing, and then to claim as a separate invention the driver when sitting without the necessity of standing. This patent is not infringed by the defendants. Neither of them employ the long saddle of Brown upon which the driver slides backward and forward. In the Selby machine the driver occupies a seat which is immovable, and in the Bergen machine, although the seat seems to be adjustable, it is only so for the purpose of ascertaining at what point the weight of the driver will balance that of the dropper. When a new driver or dropper is employed, then the seat is screwed fast, and is retained in that position in all of the operations of the machine until a change in one or the other of the men disturbs the equilibrium of the parts.

In reissue No. 1093, the inventor claims, in combination with a seed-planting machine, "the so connecting of the parts as that the portion of the machine carrying the seeding devices may be raised up out of the ground by the attendant riding on the machine, and be carried by the tongue or horses' necks and the supporting wheels." Here we have the usual claim for a result, "so connecting that the machine may be raised." Brown was not the

first person so to connect the parts of a seeding machine that the seeding devices might be raised from the ground, and carried upon the tongue or upon supporting wheels. This was done in the Remy & Kelly machine. It was done in the George W. Brown machine of 1853. In the Remy & Kelly machine it was accomplished by an attendant riding on the machine, In the George W. Brown machine of 1853 it was accomplished by the weight of the same attendant thrown upon a lever or bar at the rear, while the attendant walked on the ground. The only difference, then, between Brown's machine of 1853 and 1855, as respects their function, is, that in the one case, the attendant walks, while in the other he rides. Can a patent be obtained for allowing the operator to ride instead of walk, his weight being applied at the same part of the machine in either case? Or, if the placing of the attendant upon a machine may be the subject of letters patent as in reissue Nos. 1091, 1092, and 1093, can each additional function which he performs in that position, or each useful result which he accomplishes by that location, be made the subject of separate letters patent? We think not. But, be this as it may, the defendants do not infringe this patent. The seeding devices of their machine when raised from the ground, are not supported upon the supporting wheels and the point of the tongue. I will remove the pins which connect the forward part of the runners of the Selby machine with the frame, and then by means of the lever in the rear, will raise the seeding devices from the ground. If any portion of their weight is carried by the tongue, it is shown that the runners will, as I raise them, tip forward. If, on the contrary, the forward part of the runners rise from the

ground above the frame, instead of falling below it, it is obvious that when connected to the frame, their tendency would be to lift the point of the tongue from the horses' necks instead of throwing additional weight upon it. The Bergen machine, by means of its limited motion becomes practically rigid upon being raised slightly from the ground, so that all the weight is thrown upon the axle of the wheel.

Reissue No. 1094 claims "a lock block, or stop," to prevent the rear part of the frame from descending too low. When we remember that the machine of 1853 limited the action of the two frames by a bar which crosses from side to side, it is obvious that this claim can only be sustained for the particular device which Mr. Brown describes, and which consists of little projections from the side of the seed hopper. No one of the defendants uses these, nor is any "lock, stop, or block" used by any of them, nor any other device for limiting the motion, excepting the frame work of the machine. The parts move on until one part of the frame strikes another part, as it does in the Brown machine of 1853.

In reissue No. 1095, we have again a claim for a function, "so combining with a lever" . . . . "as that a half-motion of the lever" . . . . . "shall both open and close the seed passages,"—another combination for such an arrangement or any arrangement as will accomplish a given result, or produce a given effect. This subject has already been fully discussed under reissue No. 1039. It may be sufficient to say, in regard to this patent, that it is a mere duplication of the Finn devices for dropping the corn. It is, in effect, two Finn tubes laid side by side, to operate by a common valve. As an improvement on Finn, this

device, if properly limited, might have been patentable. The attempt to claim broadly the function which it performs, renders, as we think, the claim void, as well for want of novelty, as because it does not include a patentable subject matter. Let me call the attention of the court, for a few moments, to the machines of defendants.

Both of these machines are covered by separate patents, which patents, as the Court will see, are not for trivial devices, but involve the very structure of the machines. If there is any force in the disclaimer in No. 1036 of spoked wheels, and machines resembling a carriage rather than a sled, then the Bergen machine is the very antipodes of Brown's, for it is a machine which does resemble a carriage, which does employ spoked wheels, and which is so arranged that, with the dropper on, it can not be raised. The getting off of the dropper to raise the machine is a law of its construction, for the first thing that is done before operating the machine, is to adjust, or fasten, the seat in such a position, as that the weight of the driver will not raise the forward part of the machine with the dropper on, but will raise it when the dropper gets off, so that the machine is controlled, not by the driver, and not through the medium of any special device provided for the purpose, but simply by the mounting and dismounting of the attendant. The Selby machine is likewise of carriage form, covered by letters patent, and not operated by an attendant walking upon the ground, nor by a driver, who slides or "pitches" backward and forward upon a seat, having properly no forward frame, but having a single frame only, supported upon carriage wheels, to the forward part of which the runners are hinged in such manner that they have an independent action al-

most without limit, and so balanced that when raised from the ground their weight is thrown, not upon the point of the tongue, and the horses' necks, but entirely upon the axle of the carrying wheels. They are drawn forward precisely as the teeth of an ordinary seed drill, by a frame to which they are attached, at the point, and not at the rear as in Brown's machine. They support nothing except the seed hoppers, at their heels. They are as different from the Brown machine, or indeed any of the older machines, as it is possible to make them. In consequence of the mode in which the Brown machine is hinged, when one part rises the other must of necessity rise also, but by the arrangement adopted in the Selby machine, the runners, or the wheels, may move up and down without disturbing each other in the slightest degree. The seat of this machine has a permanent location, and does not permit the driver to occupy more than one position upon it. The location of the seat upon the machine is surely not patentable.

I have referred to the authorities upon this point in discussing No. 1091. I desire to refer your Honors now only to the additional cases of *American Wood Co.* v. *Heft*, 3 Fish. 320: "The arrangement of a discharge pipe with stop cock is what every one using a vertical boiler might use without invention, and is not open to be monopolized by Keene;" and to the case of *Larrabee* v. *Cortland*, 3 Fish. 5, in which Chief Justice Taney says: "A patentee who is not the inventor of a particular element or combination can not claim that element in combination with every form of another element with which he unites it, but

may claim it when constructed and combined as described in his specification."

When we remember that the driver's seat or stand had been previously placed on seed-planting machines by Job Brown, by Kirkman, by Remy & Kelly, by Farley, and others, it will be seen that under this authority, which is no doubt law, for it is in harmony with *McCormick* v. *Manny*, 20 Howard, Brown must be confined to his particular form of seat, and can not invoke the doctrine of mechanical equivalents to make these defendants infringers.

In regard to the Job Moffit machine, I have to say that I have not discussed this, because it is obvious that if the Court believes the testimony of the defendant's witnesses, it disposes of the patents of the complainant. It was substantially the same machine. The only question in relation to that machine is one of fact as to its existence, and this part of the case it does not fall within my province to discuss. I am sure that the Court can not rise from an examination of the testimony in relation to this machine without being convinced that such a machine had an existence. That there was but one machine, and that it was used but a short time, is, in my opinion, immaterial.

In the case of *Rich* v. *Lippincott*, 2 Fish. 7, Judge Grier, after the decision in *Gaylor* v. *Wilder*, 10 Howard, and construing that decision in relation to the very patent passed upon by the Supreme Court, says:

"The mere speculation of a philosopher or mechanic, never put into actual practice or operation, will not deprive a subsequent inventor, who has employed his labor and talents in putting it into practice, of the reward due to his ingenuity and enterprise. But, if the first inventor reduced

his theory to practice, and put his machine or other invention into use, the law never would intend that the greater or less use in which it might be, or the more or less widely the knowledge of its existence might circulate, should constitute the criterion by which to decide upon the validity of any subsequent patent for the invention. A patent may, therefore, be defeated by showing the thing secured by the patent had been discovered and put into actual use prior to the discovery of the patentee, however limited the use or knowledge of the prior discovery might have been."

The rule is, as laid down by Curtis on Patents, § 87, "If the thing patented has once been actually and completely invented or discovered before, HOWEVER LIMITED THE USE, the patent is invalidated," etc., and we refer the Court to the discussion on this point in the sections immediately following.

In *Cahoon* v. *Ring*, 1 Fisher, 397, Judge Clifford, in charging the jury, (p. 409), lays down the rule for distinguishing mere experimental from completed machines, thus: "You will inquire whether it was in point of fact a machine completed and *reduced to practice*, in contradistinction to an experimental machine, or a machine made by the supposed inventor in the prosecution of experiments and inquiries, and that unless it appears to your satisfaction that such machine *was actually used as a seed sower, in sowing seed for agricultural purposes*, you are warranted in presuming that it was a mere experiment."

In *Waterman* v. *Thompson*, 2 Fisher, 463, Shipman, J., charged the jury thus: "If he merely made an experiment and failed, abandoning his contrivance *because it would not work*, then it is of no account. But the mere fact that he

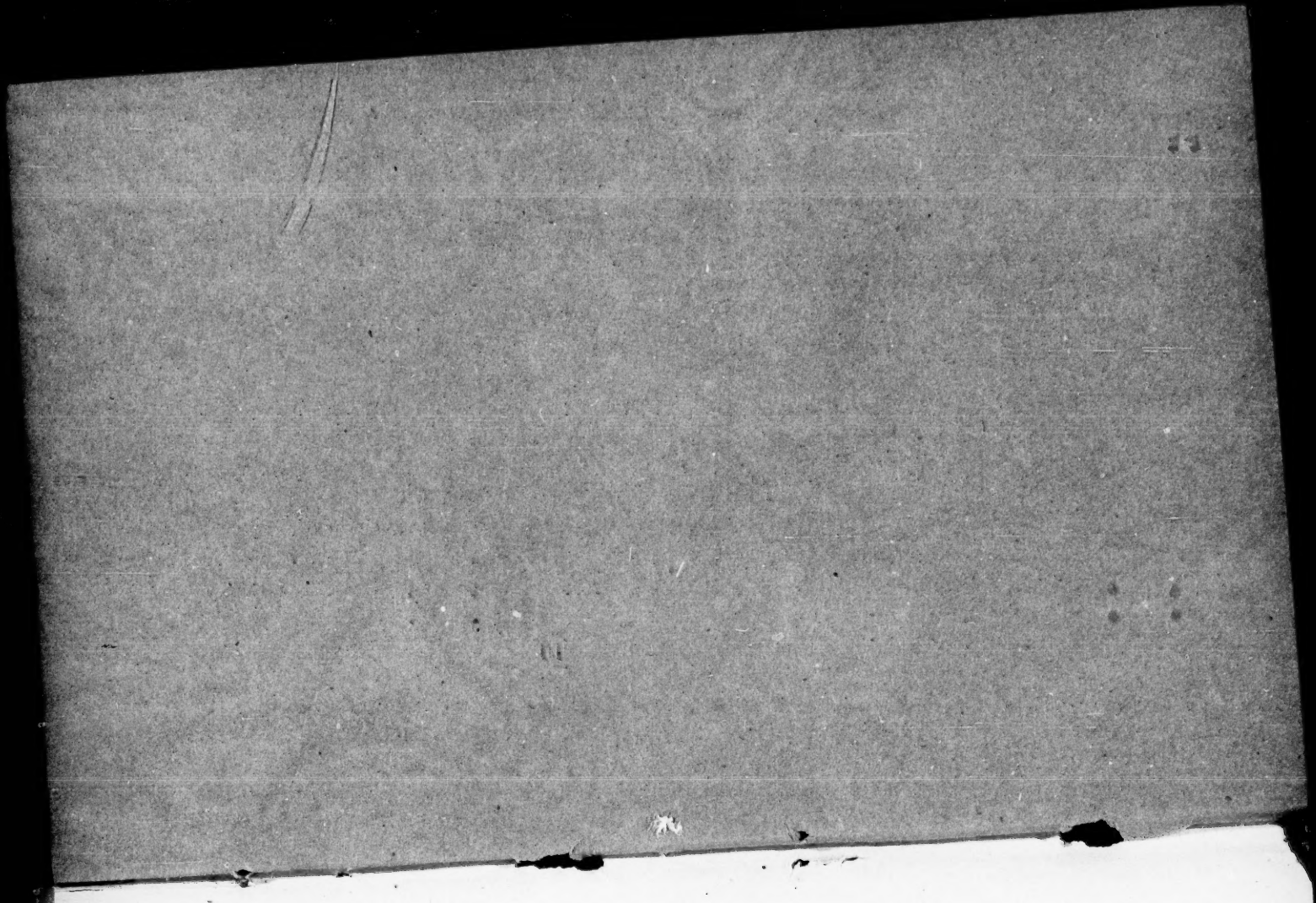
ceased to use it because he had no further occasion to do so, is, of itself, of no importance;" and in *Sayles* v. *The Chicago & N. W. R. R. Co.*, 2 Fisher, 529, Drummond, J., says: "I admit fully the law as contended for by the counsel for the defendants, that when an improvement or a machine has been *once made and used*, it is not necessary that it should be used up to the time that another person may make a similar improvement. If it has been *once used*, and is a practical improvement or machine, no one else can claim to be the inventor." In *Case* v. *Brown*, 2 Fisher, 268, his Honor, Judge Drummond, had occasion to apply the same law to the Finn machine, only one of which was ever made, and which was used in the field, planting, a part of one day, and the machine then abandoned. The fact is, that the machine of Remy & Kelly was only once used, but the evidence conclusively shows that it was a successful and practical operating machine, that only one was made, and it was abandoned because the wants of the people and the limited area of the fields in that vicinity created no demand for such a machine. True, a model was deposited in the Patent Office, as also was the case with the Finn machine; but this fact could not bring support to the inquiry whether they were practically useful machines. I refer to the digest of the testimony by my associate, which I think thoroughly establishes the position that the machine of Moffat was used successfully, and that it accomplished its purpose, although abandoned because the stumpy character of the country prevented its use in any but old fields free of such obstructions, of which there were at that day but few in that section of the country, but it is in proof that he then remarked that the machine would

some day make some man a fortune, which confirms our view that it was not a machine commencing and ending merely in experiment, and then abandoned as unsuccessful.

The fact that some of the witnesses were young at the time that they saw the machine—that is, young lads and school girls—would seem to me to confirm rather than detract from the value of their testimony. The impressions made in youth are more lasting than those of later years, and it appears from the testimony of some of these witnesses that this was the only corn-planting machine that they have ever seen. If it be true, as claimed by the complainant, that this machine was a myth, and had absolutely no existence, it certainly presents one of the most extraordinary cases of mistake that has ever been before a court of justice.

In brief, I assert, then, that Mr. Brown has established no valid claim of invention; or that, if there be some scintilla of improvement discernible, amid the mass of verbiage with which he has attempted to clothe his abortions, the defendants do not use it, and consequently do not infringe.

SAMUEL S. FISHER,
Of Counsel for Defendants.



IN THE

U. S. SUPREME COURT.

No. 102.

GEORGE W. BROWN, Appellant,

vs.

RUFUS B. GUILD, Ex'r et al. Appellees.

No. 103.

GEORGE W. BROWN, Appellant,

vs.

JAMES SELBY, et al. Appellees.

STATEMENT and BRIEF for APPELLANT.

GEORGE HARDING, Counsel for Appellant.

PHILADELPHIA:
E. C. MARKLEY & SON, PRINTERS, No. 422 LIBRARY STREET.
1873.

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IN THE

SUPREME COURT OF THE UNITED STATES,

GEORGE W. BROWN, *Appellant*,
vs.
RUFUS B. GUILD, *Ex'r, and others, Appellees.* } No. 102.

SAME APPELLANT
vs.
JAMES SELBY *and others, Appellees.* } No. 103.

APPELLANT'S STATEMENT OF CASE.

These two cases (No. 102 and No. 103) come before this Court on appeal from the Circuit Court of the United States for the Northern District of Illinois. They were heard below on bill, answer, replication, and proofs, and decrees were entered dismissing the bills. The appeals are taken by the plaintiffs below.

The pleadings and proofs in both cases are the same, except as to the single point of infringement, in which respect the appellees' machines are similar, but not identical.

The invention in controversy is a check-row corn-planter. The appellant obtained an original patent for his machine, August 3, 1853, and a subsequent original patent for further improvements thereon dated May 8, 1855. The 1853 patent

was reissued February 16, 1858, and this was re-reissued September 3, 1860, in five divisions: Nos. 1,036, 1,037, 1,038, 1,039, and 1,040.

The 1853 patent was reissued November 10, 1857, and re-reissued September 11, 1860, in five divisions: Nos. 1,091, 1,092, 1,093, 1,094, and 1,095.

The appellant charged in his bill, and contended before the Court, that the appellees in each of the cases now before this Court (Nos. 103 and 104) infringed all the claims of both groups of reissues, except reissue No. 1,040.

1. The appellees insist that, in view of the *claims* of Brown's original patent of 1853, the first group of reissues (Nos. 1,036, 1,037, 1,038, 1,039, and 1,040) were not legally granted, the claims thereof being for a different subject matter from the claims of the original patent of 1853, and not for separate parts of the machine.

2. Appellees insist that the second group of reissues was not legally granted, the claims thereof being for a different subject matter from the claims of the original patent of 1855, and not for separate parts of the machine.

3. Appellees insist that the claims of each of these reissues are anticipated by prior use and by prior patents, specifically noticed hereinafter.

4. Appellees insist that the first claim of reissue 1,039 and the claims of 1,091 and 1,092 each include or cover a function or result, and are, therefore, not patentable subject matters.

5. Appellees insist that they do not infringe either of the claims of appellant's reissued patents when properly construed.

The infringement by the appellees in suit No. 102, will clearly appear by comparing the several claims sued upon with the model of the machines admitted to have been made by appellees, viz.: the model marked "George I. Bergen," admitted at page , record in suit No. 102, and in suit No. 103, with

the model marked "James Selby machine," introduced at record page 726, Q. 11.

The cases were argued together, December 2d to 5th, 1868, before Judge Drummond. A decree was entered March 6, 1871, dismissing the bills of complaint in both cases, and an opinion was filed by Judge Drummond.

ASSIGNMENT OF ERRORS.

The following errors are assigned as to the opinion which was filed with the decree, viz.:

I. *Error.* (*Reissue of 1,036.*)

In deciding that the appellant had no right to claim the combination of runners, frame and rollers, as set forth in reissue 1,036, and in holding that there must be "*a somewhat rigid limitation to the form and manner of the combination, otherwise all improvements in that direction would be suspended,*" and in deciding that appellees did not infringe the claim of this reissue.

II. *Error.* (*As to reissue 1,037.*)

In deciding, under reissue 1,037, that Kirkman, Job Brown, and Abbott, anticipated the appellant in the construction of the runner there claimed.

III. *Error.* (*As to reissue 1,038.*)

In deciding, under reissue 1,038, that the Bergen and Selby machine did not infringe the claim of this reissue.

IV. *Error.* (*As to reissue 1,039.*)

In deciding, under reissue 1,039: 1st. That the first claim of reissue 1,039 is for a result. 2d. That the machines of Kirkman and Job Brown had been so arranged that a man to work the hand-dropper could be and had been placed thereon, and worked

prior to appellant's invention. 3d. In deciding that there is nothing in appellant's claim to prevent appellees, Bergen and Selby, from using their machines as they are arranged. 4th. In deciding that appellees do not infringe the second claim of this reissue No. 1,039.

V. *Error.* (*As to Reissue 1091.*)

In deciding as to reissue 1091, that the first claim is for a result and not patentable, and that the appellees' machine does not infringe it; and that as to the second claim, the appellant's device will not accomplish the result he claims, overbalancing the dropper's weight by the driver, and that appellees do not infringe.

VI. *Error.* (*As to Reissue 1092.*)

In deciding that "*as to the long seat, the appellants do not use it,*" and that it does not accomplish the result stated.

VII. *Error.* (*As to Reissue 1094.*)

In deciding that the appellees do not infringe this claim.

VIII. *Error.* (*As to Reissue 1095.*)

In holding that the appellant was estopped from claiming this device, because he did not claim it in his original or first reissued patent.

In not deciding whether this claim was a valid one, or whether the appellees infringed it.

BRIEF OF ARGUMENT.

The argument will be made under each reissue separately, but the reference to the law authorities and the reference to the record to establish the comparative dates of the several inventions, being generally applicable to all the reissues, will be collated afterwards.

Reissue No. 1,036.

The claim of reissue No. 1,036, is for a seed planting machine, having a framework with two runners in front and two supporting wheels behind, which latter act to cover the grain as well as support the machine. It is not denied that the appellees use the combination as thus stated.

The drawings annexed to this reissue are the same as annexed to the original patent of 1853, and the description is substantially the same. The law applicable is set forth in points I. and II., hereinafter, page .

The subject matter of this claim is clearly shown in the original model, drawings, and description of appellant's patent of 1853, but was not claimed specifically. It is not insisted by appellees that it is not shown in the model and drawings of the original patent.

The appellees insist that the invention so claimed was anticipated.

1. By the prior knowledge and use by John Kirkman.

2. By the prior knowledge and use by Job Moffett.

3. That Henry Todd's machine, patented December 15, 1843, could be altered, without invention, into appellant's machine.

1. The appellant replies, that the machine of John Kirkman was not built until 1851; that it was an experimental machine for the first two years, and was not a completed invention at the date of appellant's invention, and cannot, therefore, affect his rights. The history of Kirkman's invention is discussed on page , post.

2. The appellant replies, that the weight of testimony shows that Job Moffett did not have such a machine as appellant's.

3. The changes required to convert Todd's machine into appellant's amount to invention.

Reissue No. 1,037.

The claim of reissue No. 1,037 is for a peculiarly constructed

runner, having the qualities of, 1. An upward inclining edge; 2. Thinness; 3. Gradually widening towards its rear end; 4. Length enough to support the frame-work.

An inspection of the appellee's runners, in both the Selby and Bergen models, shows the presence of two runners on each machine having these qualities.

The subject matter of this claim is clearly shown in the original specification, model and drawings, and it is not alleged not to be found there. It is a distinct feature of the machine, and might have been made by itself the subject matter of a special patent.

Appellees contend that the invention contained in this claim was anticipated:

1. By Henry Todd's patent of December 15, 1843.
2. By the machine of Job Brown of 1852.
3. By the runner of James Abbot.
4. By the runner of John Kirkman.

1. To these it is replied by appellant that the so-called runner of Henry Todd's patent is wholly unlike appellant's.

2. That Job Brown's so-called runner is unlike appellant's, and is not proven to have anticipated his invention in point of date.

3. The runner of James Abbot was a mere experiment, and is not proven to have anticipated appellant's invention.

4. The runner of John Kirkman does not anticipate in date appellant's invention, and lacks some of its features.

Reissue No. 1,038.

The claim of reissue No. 1,038 is contended to be for the construction of the seed-planting machine, having two runners and two wheels, with a hinged joint for connecting the parts of said machine together, "so that *one part* of the frame work may be raised, turned, or supported *on the other part*, substantially as described.'

In the appellee's machine (model Selby and model Bergen) the front runners and the hind wheels are connected together by a hinge-joint connection, so that *one part* of the frame work may be raised, turned, or adjusted *on the other part.* Appellee's machines, in both cases, obtain all the advantages due to this joint connection between the two parts of the frame work. The practical advantages resulting from this organization in appellee's machine, is shown fully in the proofs.

The invention contained in this reissue was fully set out in the original drawings and model, and referred to in the specification.

The invention proclaimed is a substantive feature which could have been made the subject of a special patent.

Appellees contend that the invention contained in this reissue was anticipated.

1. By John Kirkman's prior use.

2. By Remy and Kelly's use, and their rejected application for a patent.

3. By Jacob Mumma's patent, November 20, 1849.

1. Appellants reply that Kirkman's machine does not anticipate in date, appellant's invention, and Kirkman's experimental machine moreover did not contain this invention.

2. Remy and Kelly's use amounted to no more than an abandoned experiment, and did not exhibit the same invention as now claimed. 3. Jacob Mumma's patent of 1849 does not exhibit the invention.

Reissue No. 1,039.

The 1st claim of this reissue is understood to be for the ararrangement of the several parts of the corn planter, with special reference to the location of the seat for the dropper, so that he may readily see the requisite marks on the ground and while watching them operate the dropping mechanism. The appellees' machines, in both cases, (models Selby & Ber-

gen), manifestly infringe this claim. Their machines are so arranged that a dropper's seat is located in precisely the same position as in the appellant's machine, and so that he can there perform the same functions.

This feature was shown in the original model and drawings and alluded to in the original specification. It is also a peculiar feature not *necessarily* involved with the other parts of the machine and might have been made the subject originally of a special patent.

Appellees contend that this claim covers a function, viz.: the mere placing of a man on the machine and that it is not patentable.

To this it is replied that while the *mere placing of a* man on a machine, previously so organized as to admit of his being placed thereon, would not be patentable, yet the organization and arrangement of the parts of a machine so that a man could be mounted in such a position to perform certain required duties, is a patentable subject matter. See references to authorities under point III.

Appellees further insist that the invention claimed in reissue 1039 was anticipated by the prior use by Job Brown and by that of Finn. To this it is replied that the inventions of Job Brown and of Finn are not proven to be prior in date to that of the appellant, and do not exhibit the same arrangement or organization of parts to secure the location of the dropper's seat.

Reissue No. 1,091.

The first claim of this reissue is contended to be for the arrangement of the seats of the driver and dropper substantially as shown in the specification, so that the driver can perform his work over and above the head of the dropper, and that the driver and dropper will not interfere with each other.

The appellees have so organized their machine (see models Selby and Bergen) that the driver's and dropper's seats are ar-

ranged in the same manner exactly as in the appellant's machine, and the same advantageous results follow.

This invention was clearly exhibited in the model and drawings of the appellant's original patent of 1855, on which this reissue is based.

A separate original patent might have been taken for this arrangement, and hence a separate division of reissue was proper.

The appellees contend, as to this claim, that it is not a patentable subject, as being for the mere putting of two men on a machine so as not to interfere with one another. The remarks made under reissue 1039 may be here repeated, viz.: that the claim is for doing this thing "*substantially as described,*" and this involves the arrangement of the machine and the seats as shown for that purpose, and that under the decision in Seymour *vs.* Osborne, 11 Wallace, 516, such a claim would be so construed and would be held valid.

To anticipate this invention, appellees refer to the machine of 1, Finn., 2, of Job Brown.

To which it is replied, that neither of these machines exhibit any arrangement such as is described in appellant's patent—nor anything like the arrangement employed by appellees.

Reissue No. 1092.

The claim of this reissue is contended to be the peculiar construction and location shown in the specifications of the driver's seat in reference to the balancing by the driver of the seeding part of the machine.

This peculiarity of construction was shown in the original specification drawings and model. It might have been made a separate patent originally.

The appellees are not understood to set up any prior machine as having this arrangement of seat.

The same legal objection is taken to this claim as to that of reissue 1091, and the same comment is made by appellant.

Appellees' expert, Dodge, admits that the adaptation and arrangement of such seat would be invention. Record, p. 701.

Int. 49. Suppose a seat, similar in construction to that of Brown's, be placed on the machine of Farley's; state whether or not, in your opinion, the same would be identical in principle with the claim in said patent 1092?

Ans. I should say it would—clearly so.

Int. 50. Would the placing of such seat on the machine of Farley's be a change simply mechanical, or would it involve the exercise of the inventive faculty?

A. I should say that, providing the seat and placing it like that on Brown's, would require the exercise of the inventive faculty to a greater or less degree.

Reissue No. 1094.

The claim of this reissue is contended to be for the stop to limit the flexibility of the machine as shown in the specification.

The novelty of this feature is not understood to be questioned.

An examination of the appellees' machines (model Selby and model Bergen) will show that it is to be found there. This invention was exhibited in the original model and drawings of the patent of 1855.

Reissue No. 1095.

The claim of this reissue is understood to be for a lever in combination with two dropping valves in a seed hopper, so arranged as that a half motion of the lever shall open and close the seed passages substantially as described in the specification.

It is not attempted to be denied that the appellees use this arrangement, nor is it asserted that any one used this arrangement prior to the appellant.

The claim is not broadly for double dropping devices, but merely for a peculiar arrangement by which one half the labor of the dropper is avoided.

LAW POINTS.

I.

In determining the validity of a reissued patent the only question left open for the Court is whether on a comparison of the reissued patent with the original specification, drawing and model, the subject matter of the reissued claims, can be found therein; if so, the reissued patent is valid.

Seymour *vs.* Osborne, 11 Wallace, 516.
Eureka Co. *vs.* Baily, 11 Wallace, 488.
Parham *vs.* Buttonhole Co., 4 Fisher.

II.

The granting of reissued patents in separate divisions instead of in one patent is a matter in the discretion of the Commissioner of Patents.

Bennet *vs.* Fowler, 8 Wallace, 445.
Penn. Salt Co. *vs.* Guggenheim, 3 Fisher, 423.
Seymour *vs.* Osborne, 11 Wallace, 516.
Edwards *vs.* Darby, 12 Wheaton, 210.

III.

As to the legality of claims in the form contained in reissues 1039, 1091, and 1092, and as to the construction of the claims of the reissues generally.

Seymour *vs.* Osborne, 11 Wallace, 516.
Roberts *vs.* Dickey, 4 Fisher, 532.
McCormick *vs.* Seymour,
McCormick *vs.* Talcott, Howard,

IV.

As to what is required in a prior invention to defeat a patent, and as to prior public use.

Whitely *vs.* Swayne, 7 Wallace, 681.

Agawam Co. *vs.* Jordan, 7 Wallace, 583.
Seymour *vs.* Osborne, 11 Wallace, 552.
Washburn *vs.* Gould, 3 Story, 122.
Howe *vs.* Underwood, 3 Story.
Cahoon *vs.* Ring, 1 Clifford, 612.
Union Sugar Refining Company *vs.* Mathews, 1 Clifford.
Cox *vs.* Griggs, 2 Fisher, 177.
Carhart *vs.* Root, 2 Clifford, 123.
Gaylor *vs.* Wilder, 10 Howard, 498.
Parkhurst *vs.* Kinsman, 1 Blatch., 488.
Lewis *vs.* Marling, 1 W. P. C., 493.
Sayles *vs.* N. W. Railroad Company, 4 Fisher, 584.
Roberts *vs.* Dickey, 4 Fisher, 532.

V.

As to the certainty required in establishing the nature of an alleged prior invention, and in fixing its date.

Wood *vs.* Cleveland Rolling Mill Company, 4 Fisher, 559.
Parham *vs.* Buttonhole Company, 4 Fisher, 687.
Hayden *vs.* Suffolk Manufacturing Company, 4 Fisher, 98.
Tompkins *vs.* Gage, 2 Fisher, 580.
Goodyear *vs.* Day, 2 Wallace, 299.
Cox *vs.* Griggs, 2 Fisher, 177.
Woolman *vs.* Stimpson, 3 Fisher, 110.

VI.

As to modifications of prior devices to convert them into the patented improvement.

Wood *vs.* Cleveland Rolling Mill Company, 4 Fisher, 559.

VII.

As to what constitutes infringement and the doctrine of equivalents as applicable thereto.

Seymour *vs.* Osborne, 11 Wallace, 516.

Union Sugar Refining Company *vs.* Matthewson, 1 Clifford, 2 Fisher, 600.

VIII.

As to the effect to be given to the patents of Appellees of date subsequent to the date of Appellant's patent.

Blanchard *vs.* Putnam, 8 Wallace, 425.

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